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THE PLACE OF PATHOLOGY AMONG THE MEDICAL SCIENCES *

By W. W. C. Topley, F.R.C.P., F.R.S.

PROFESSOR OF BACTERIOLOGY AND IMMUNOLOGY IN THE UNIVERSITY OF LONDON AT THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

When Edgar Hartley Kettle died, almost two years ago, he left for all who knew him a memory that needed nothing to keep it fresh and vivid. He had one of those rare personalities that attract and inspire in equal measure; and those who had the good fortune to know him well and see him often look back on an experience which they treasure themselves, but cannot pass on to others. There was a widespread desire that there should be some public tribute to his memory, and particularly to his scientific work; and a fund was opened with this end in view. It was decided to establish a Kettle memorial lecture, to be delivered annually, in rotation, in the four medical schools with which he had been associated—the British Postgraduate Medical School, the medical school of St. Bartholomew's Hospital, the Welsh National School of Medicine, and the medical school of St. Mary's Hospital. It is the first of these memorial lectures that I have the honour of delivering to-day.

Some of you, I think, must feel that it is singularly inappropriate that this honour should have fallen to me. I feel it myself. I cannot pretend to any expert knowledge in that field of pathology which Kettle had made particularly his own, nor do I share his general background of a detailed and extensive knowledge of morbid anatomy and histology. Yet, if this prevents a full appreciation of the technical beauty of much of his work, as evidenced, for instance, in his well-known monograph on tumours, illustrated by his own hand, it places me, perhaps, in a stronger position to pay a tribute to the wider significance of his life and work. Kettle, as all those of his generation, lived and worked in a period of almost breathless transition, as breathless in the field of medical science as in the wider world outside the laboratories and the wards. He had the rare wisdom that enabled him to keep a clear head amid the rapid emergence and development of new subjects and new techniques, and the adjustments that they necessitated in our older scheme of things. He never resisted, or resented, them. He had an instinctive sympathy for all new things, and for all young people; but in welcoming the new he did not forget the old. He started his scientific career, in common with all morbid anatomists of his time, as an accurate observer. He turned, with increasing emphasis in the later years of his life, to the experimental method, using his histological knowledge and technique as a tool, and proving its serviceableness in his classical studies on silicosis.

I shall try, in this lecture, to sketch in outline the position that pathology occupies to-day, and to indicate lines of probable, or possible, development. In doing so I shall, of course, be giving my personal views on highly debatable problems. This is so obvious that I emphasise it only to avoid the repeated qualification, in this sense, of the conclusions, or suggestions, that I shall put before you. I shall quote freely from Kettle's written papers, and consciously, or unconsciously, I shall be influenced still more by memories of his spoken words; but I must not claim that his conclusions would have been the same as my own. I do not think that we should have differed very widely, but it is so easy to twist the views of others in the direction of one's own bias that it is impossible to avoid the risk of misinterpretation. Of one thing, at least, I am sure—that a study of Kettle's scientific writings, and a knowledge of his work as an investigator, teacher, and administrator, will help us to form a clearer picture of the road over which pathology has travelled in the past thirty years, and of the paths that lie open to it in the future.

THE SCOPE OF PATHOLOGY

A scientific territory has no natural frontiers. Its borders are nebulous and changing. It may expand rapidly in one area, and sometimes contract in another; and wherever it touches a neighbouring field of work there is a mutual infiltration that defies all verbal boundaries.

A growing science does not only expand, it buds and divides. Physiology and pathology are themselves offshoots of medicine. Pathology, in response to the stimulus provided by Pasteur and by Koch, has branched into medical bacteriology, and both physiology and pathology have united with chemistry to produce offspring that have demanded names of their own. A description of any science must be given in dynamic not in static terms. We cannot say that pathology *is* so-and-so. We can only say what and where it is at the moment, and which way it seems to be moving. This means that we must make our description in some degree historical, since we must guess the future in terms of the past. It may help us to note certain movements that have been common to the biological sciences in general, and to sketch very briefly the path that has been followed by one of them, physiology, with which pathology is closely linked.

In each of the biological sciences there has been a general drift from a systematic study of structure and relationships to a study of function, and from a study of any given function as an integrated whole to an analysis of the mechanisms on which that function depends. The movement is, of course, only a shift in the immediate focus of intellectual interest and effort. Structure does not become less important when it is viewed in terms of function, indeed it gains greatly in significance.

Although this drift has been general, and continuous in direction, it has not been continuous in rate; so that it is possible to ascribe to particular periods, and often to particular persons, an acceleration so striking as to constitute a new epoch in the branch of science concerned.

Taking as an example the growth of physiology in this country I think it would not be far from the truth to identify the transition from the description of function mainly in terms of structure to the study of function by direct laboratory experiment with the transition from Huxley to Michael Foster. It is true that Huxley belongs rather to the zoological than to the physiological apostolic succession; but he began life as a physiologist, and he never lost his interest in that branch of science. His "Lessons in Elementary Physiology," first published in 1866, ran through many subsequent editions. It may seem a far cry from Huxley to Foster, from

* The first Kettle memorial lecture, delivered under the auspices of the British Postgraduate Medical School at the London School of Hygiene and Tropical Medicine on Nov. 24th.

the Lessons to the "Textbook of Physiology," but there was no break in continuity, and it is certain that none would have been admitted by Foster himself. Huxley, in his preface, acknowledges his particular indebtedness to the help of his accomplished friend, Dr. Michael Foster. Foster, launching the first edition of his Textbook in 1877, presupposes in his readers such an elementary acquaintance with physiology as can be gained from Huxley's Lessons, as an advanced companion to which he humbly hopes that his own book may be considered.

The essential continuity is clear enough; but I do not think that anyone who takes the trouble to read, even cursorily, both the Lessons and the Textbook, will feel that the difference between them is adequately expressed by labelling one elementary and the other advanced. The approach differs at least as much as the contents. Huxley, by training a morphologist, deals so largely with structure that the Lessons are as much an elementary description of human anatomy and histology as a primer of physiology. Foster, in the Textbook, has a very different outlook. He not only assumes a knowledge of the Lessons. He also takes for granted an acquaintance with anatomy and histology, since "In the presence of Quain's *Anatomy*, there is no need for a physiological treatise to repeat imperfectly what is there said so well." The illustrations in Huxley's Lessons are anatomical and histological drawings, those in Foster's Textbook are tracings, curves, and diagrams.

The technique of experimental mammalian physiology has lasted from Michael Foster to our own time; and will last much longer, whether it is labelled physiology, or bears some other name. It has not, however, maintained its dominance. I hesitate to date the beginnings of the change that are now apparent to us all; but I should say that they were detectable in the opening years of this century, though they have been greatly accelerated since the war. First biochemistry and then biophysics have become so active, and have so amply justified themselves by results, that they have tended to overshadow, in the schools and in the literature, the problems and the methods that characterised physiology from the 'eighties to the early years of the present century. For the balance of the medical sciences as a whole, it seems possible that the pendulum has swung too far.

Pathology, like physiology, began with a study of structure, or rather of structural changes; but it was still in this phase when physiology had undergone its metamorphosis into an experimental science. Virchow died in 1902, when Kettle's student days were just beginning. Cohnheim, Virchow's pupil, had died before him. Aschoff, happily still with us, was in the ascendant, and Kettle worked under him in Freiburg in 1911. It would not, even in those days, have been just to equate pathology to morbid anatomy and histology; but, if bacteriology had been excluded as a distinct branch of medical science, it would not have been grotesquely wide of the mark. An expert knowledge of morbid anatomy and histology was, at least, the hall-mark of a pathologist; and in this field Kettle quickly proved himself a master. His earliest paper, published in 1912, was a careful description of a case of carcinoma and sarcoma in the same breast; but it was prophetic that his second paper, published conjointly within six weeks of the first, dealt with the histology of an experimental streptococcal infection in laboratory animals.

Though his later scientific work turned increasingly away from the observational study of the morbid anatomy of natural disease towards the use of histology as an experimental method, Kettle never abandoned his interest in, or mastery over, the field provided by the post-mortem room and the ward. We have noted that Michael Foster, in 1877, relinquished normal histology to the competent hands of the anatomist, a solution that has not been universally accepted, though it has strong supporters. There are no competent receivers to whom pathology could pass morbid histology, even if it wished to do so; and no such wish exists. The accurate and detailed study of the changes in tissue structure associated with disease must always be an essential part of pathology as a whole; nor, I think, could a worker claim the label of pathologist in any broad sense if he had no knowledge at all of the structural changes associated with pathological processes. If there is any danger at the present time in regard to the relative activity of the different aspects of pathology it is a danger of too few morbid anatomists, not of too many. The rapid advances made by bacteriology and immunity, by biochemistry, and by the application, as in cardiology, of physiological methods to pathological problems, have invited so many workers into other paths that the expert histologist may soon be, if not a *rara avis*, at least a species whose future gives cause for anxiety. We cannot do without him. As a diagnostician he has an essential rôle to play, and he forms a firm and valuable link between pathology and clinical medicine. In the field of experimental research his potentialities are in the early stages of development; and the growing realisation of this fact, particularly in this country and in America, may provide us with the recruits that we so clearly need.

It does not follow that pathology *is* morbid anatomy, or that morbid anatomists are the only pathologists. Here, I think, our labelling has lagged behind our practice, with results that are, or may become, unfortunate. A pathologist must have some knowledge of structural tissue changes, but he must also know enough physiology to relate abnormal structure to abnormal function, enough biochemistry to understand something of the chemical causes, or consequences, of the pathological processes that he studies, and enough bacteriology and immunity to give him some insight into the mechanisms involved in infective disease. No man can be a master in each and all these fields; but they are all pathology, and none of them has an exclusive right to that title.

THE RELATION BETWEEN MORBID ANATOMY AND MEDICAL BACTERIOLOGY

If the common use of the label pathology as a synonym for morbid anatomy is misleading, the label bacteriology, in so far as it implies a differentiation from pathology, is more misleading still. The bacteriologist, properly so-called, is clearly a particular kind of botanist. He studies bacteria as such. The medical bacteriologist, on the other hand, is a pathologist who is concerned with bacterial and virus infections of man and animals. He must spend much of his time and energy in studying the parasites; but he cannot neglect the hosts. The tissue changes associated with infection are clearly within his province.

It would, I think, be difficult to find a better illustration of the close, and inevitable, relationship between morbid anatomy and medical bacteriology than is provided by Kettle's work in the years since the late war. From a preoccupation with new growths, and with certain diseases of the spleen, he turned again to the histological study of infective processes, when he published, in 1919, his description of the histopathology of gas gangrene. From this he was led,

in part as the result of the findings of Gye and Cramer, to study, at first in association with Gye and later alone, the effect of calcium and silica on various experimental infections. These studies, in their turn, led to the prolonged investigations into silicosis and miners' phthisis that occupied the last fifteen years of his life. Though Kettle's research work, in his later years, was so largely concerned with the effect of harmful dusts, and the relation of these effects to bacterial infections, his interest in the structural tissue changes associated with infective disease extended far beyond this particular problem; and I know of no better summary of this field of pathology, so far as it was then developed, than is contained in the series of lectures on Inflammation and Infection which he delivered at Guy's Hospital in 1927.

Kettle starts these lectures by deploring the fact that the rapid development of bacteriological technique during the latter years of last century, and the early years of this, led to a temporary divorce between medical bacteriology and morbid anatomy, and to a consequent failure to study in any detail the lesions which various bacteria produce in the tissues, and the mechanisms on which these lesions depend. He proceeds to summarise, and to discuss briefly, some of the problems that our incomplete knowledge presents for further study. Why do certain organisms show a predilection for certain tissues? Why do different bacteria, attacking the same locality, as for example the meninges, produce lesions the distribution and extent of which are so different that the morbid anatomist can usually make a good guess at the findings which the bacteriologist will obtain? Why do typhoid and dysentery bacilli, closely related as they are from the view-point of the systematic bacteriologist, produce such different lesions in the intestine, the one attacking mainly lymphoid tissue and spreading rapidly to the regional lymph glands and the blood stream, the other giving rise to an extensive necrotic inflammation of the mucous membrane, but seldom spreading beyond the intestine. Why does the pneumococcus produce a copious exudate rich in fibrin, while the anthrax bacillus, which causes as pronounced a vascular lesion, induces an exudate which is characteristically serous and shows little tendency to fibrin formation?

Kettle does not, of course, suggest that such problems can be solved by purely histological studies. It is clear that the differences in tissue reaction must depend on differences in the active chemical substances produced by the invading organisms; and Kettle prefaces his account of the histological changes encountered in various infections by a description of the reaction of the tissues to the injection of calcium, silica, turpentine, and certain inert or insoluble substances. The obvious method of attack is by a direct experimental study of the histological changes induced by various bacterial constituents, or products, including the substances produced from the tissue cells themselves in the earlier stages of an inflammatory reaction; and the significance of such studies will clearly depend in large part on our ability to isolate the active substances in a state of chemical purity, and eventually to determine their chemical constitution.

We have made some progress along these lines since Kettle's lectures were delivered. Perhaps the most hopeful sign to those who, like myself, believe that he was pushing at a door that was in urgent need of opening, is the active and systematic exploration of this field that has been inaugurated in America by Menkin and his colleagues on the one hand, and by Rich and his colleagues on the other. The controversy to which this work has led is, I think, good evidence that there is something worth arguing about.

THE METHODS OF PATHOLOGY

A general discussion of pathological methods would clearly be out of place in this lecture; but it may be well to emphasise some of the factors which differentiate pathology from most other medical sciences except clinical medicine itself.

A considerable part of the pathologist's work is still concerned with the observation of naturally occurring events not subject to experimental control. He has, therefore, in common with others in a similar position, to guard carefully against drawing premature conclusions from inadequate data; and rapid solutions are unlikely to come his way. What is less often realised is that he usually suffers from a similar disadvantage when he confines himself to the experimental field. Here, I think, there is a sharp contrast with physiology. It would not be a gross misrepresentation to attribute the rapid advance of physiology in the last half-century to the successful designing and exploitation of acute experiments—acute, I mean, in point of time. By his skill in this direction the physiologist has been able to obtain rapid answers to many of his problems; not only because experiments of this type give their answers quickly but because their very shortness of duration helps to eliminate the chance intrusion of many disturbing factors. It is altogether probable that similar methods will yield valuable results to the pathologist, when he is in a position to use them, and one of the hopeful signs of the present day is the entry into the pathological field of workers who have acquired a physiological technique; but for a long time to come pathologists will be largely concerned with experiments that are as chronic as the processes they are designed to study, and the technique of the long-term experiment will be an essential element in their training.

In this technique Kettle was a master. He had no more love than the rest of us for experiments that take weeks, or months, to yield their results, and he shortened his work where he could; but he knew where shortening was dangerous, or fatal, and he had the patience to wait for his answers when waiting was unavoidable. Moreover, he realised that in long-term experiments the intrusion of individual variations in response demands the use of an adequate number of experimental animals. The best example of this patient pursuit of a problem that, by its very nature, could not be solved more quickly, is, of course, afforded by his studies on silicosis; but these studies raise another general question that deserves discussion, and an admirable illustration of the point immediately at issue will be found in his paper on the Criteria of Cure in Tuberculosis of the Guinea-pig, published in 1923.

Kettle was led to undertake this inquiry by the publication of the results obtained by Dreyer with his "diaplyte" vaccine. On the basis of experiments on a small number of guinea-pigs and rabbits, judging in part by an increased survival time, in part by the demonstration of healing tuberculous lesions in the treated animals, Dreyer concluded that this vaccine was capable of bringing about a definite improvement, both general and local, in animals infected with tuberculosis. In reviewing these, and earlier, studies on the effect of immunising reagents on experimental tuberculosis, Kettle says, in the opening section of his paper:—

"Two assumptions seem to underlie all these experiments: (1) That all guinea-pigs react in the same way to he tubercle bacillus, and (2) that fibrosis, or healing,

of local lesions indicate with certainty the cure of the individual. Both these assumptions are false, as I shall hope to show. . . ."

He did show it, finally and with documented protocols and proofs.

To Kettle himself, or to those who shared at least in some degree his knowledge and experience, the demonstration was almost unnecessary. As he pointed out, the Reports of the Royal Commission on Tuberculosis should have warned any worker that the variability of survival time in laboratory animals infected experimentally with the tubercle bacillus is so great that no reliance can be placed on differences between small groups of animals; while any morbid anatomist who has studied tuberculosis in man knows that it is common to find fibrosed and encapsuled lesions in the lungs or elsewhere associated with an acute local or general exacerbation of the disease. There was, however, a gap that needed filling. Tuberculosis in the guinea-pig is a progressively fatal disease, though the length of its course is subject to wide variations; and pathologists were far less well informed as to the frequency of healing lesions in tuberculous guinea-pigs than as to their frequency in tuberculous human beings. Kettle showed that such lesions were very frequent, and that a comparison of their relative frequency in treated and untreated groups of tuberculous guinea-pigs, combined with careful records of loss or gain in weight, and the average survival time limited to three months, gave no indication that either the diaplyte vaccine, or a killed suspension of tubercle bacilli, administered in the doses and at the intervals employed, exerted any curative action on the infected animals. Actually each of the treated groups fared worse than the untreated controls.

It is characteristic of Kettle that he should have been willing to spend the time and effort demanded on a clear demonstration of the technical requirements of a particular type of pathological experiment. He did not regard his results as evidence that the diaplyte vaccine, or any other, was necessarily useless in the cure or prevention of tuberculosis. He was merely concerned to show that the particular experimental proof adduced in its favour was, in fact, no proof. He had an intense dislike of avoidable errors.

It would, I think, be true to say that scientific research can be roughly divided into two broad categories—those inquiries that are determined mainly by the nature of the problem to be solved, and those that are determined mainly by the nature of the technique to be employed. The great names, and the great moments, of science are associated with a transient merging of these two categories. A technique, developed in an attack on one particular problem, is found to be applicable to a multitude of related problems, all of which, by their intrinsic interest and importance, are pressing for solution. Such a period occurred in the bacteriological field between 1880 and 1900, when, as Löffler put it, "Koch shook the trees and the apples fell." But it is seldom long before the advent of the period of diminishing returns. The new technique takes its place as one of the tools of science, but the advance, on that particular front, slows up until some new technique is invented. There are not many Pasteurs or Kochs; and the efficacy, even of these great ones, depends in part on the times in which they live, and on developments in other branches of science that provide them with the instruments that they exploit. At most times, and for most of us, the choice is less happy. We can attack a chosen problem by slow and relatively ineffective methods, developing them a little where we can, or we can select a technique and apply it to such problems as it is clearly fitted to solve. There must always be compromise, and a compromise based on judgment and experience. The wise investigator will not attack a problem, however interesting or important it may be, if he sees no hope of solving it; nor will he, except when he is learning his trade, be content to apply some existing technique to a trivial problem, merely for the sake of getting an answer that can be put on record.

Avoiding these extremes, the choice is free. We need both types of work; and, if we need them, it is well to appreciate and understand them. There is, I think, a danger of judging too much on results, and particularly on the form in which results can be presented. The neat and tidy answer to one problem may represent no more significant advance than the ragged and partial solution of another. Above all, it is a frank misuse of words to suggest that the one result is more "scientific" than the other, or has been gained by more "scientific" means. So long as the canons of working hypothesis, experiment, and deduction are properly observed, and dubious conclusions from inadequate data are avoided, there is no reproach in facing the difficulties of a long road, where no short road is available.

Kettle had no illusions as to the length of the road on which he was embarking when he set himself to study the factors concerned in pulmonary silicosis. He was able, by giving a few direct intratracheal injections of an active dust at widely spaced intervals, to avoid the cumbersome method of prolonged and repeated exposures in a dusting chamber. This enabled him to multiply his experiments; but he could not greatly shorten them, since experience showed that lapse of time is an essential factor in the development of the characteristic reaction. In his earlier experiments along these lines, which lasted for about one hundred days, there was little true fibrosis. It was only when, in later studies, guinea-pigs were kept alive for such periods as 557 days, with injections on the 1st, 158th, and 217th days of experiment, that characteristic silicotic nodules were developed.

One of the problems with which Kettle was faced was the assessment of the relative activity of various dusts to which industrial workers were exposed. A method of assay that takes two years to give an answer is ill-fitted for such a purpose; and he attempted a short cut by determining the effect of the subcutaneous injection of various dusts on the localisation of tuberculous lesions following the intravenous injection of living tubercle bacilli. The nature of the dust lesions themselves, and their influence on the local proliferation of the injected tubercle bacilli, enabled him to allocate the substances studied to an active or to an inert group, and, with one exception, the grouping by this method of a large number of different dusts corresponded with the prevalent views, based on industrial experience, of their relative harmfulness or harmlessness. The exception was kaolin. It was not, when Kettle made this series of tests, regarded as a cause of pneumoconiosis, or as an accessory factor in pulmonary tuberculosis, nor is it so regarded to-day, but when injected subcutaneously into mice it proved as active as uncombined silica.

This finding led Kettle to use kaolin in a later series of experiments—the last that he recorded in detailed form—in which he compared the effect of the intratracheal injection of dust alone, of dead tubercle bacilli alone, and of a mixture of dust and dead tubercle bacilli. He found that while neither kaolin alone nor dead tubercle bacilli alone caused any detectable pulmonary fibrosis in periods up to 500 days, injections of a mixture of kaolin and dead bacilli gave rise, within periods as short as 112 days, to characteristic nodular lesions, closely resembling

those of tuberculo-silicosis in man. He was thus led, in the last year of his life, to put forward a view that has since gained many adherents—that the relation between pulmonary tuberculosis and silicosis is not fully expressed by regarding the silica lesion as predisposing to the inception, or extension, of tuberculosis, but that each harmful agent increases the effect of the other.

Whether, or how frequently, silicosis occurs naturally in the entire absence of tuberculosis, or of some other pre-existing infection, is a matter that only time and experience can determine; but Kettle himself was inclined, on the basis of his experimental findings, and his wide experience of the disease in man, to place great weight on the infective factor; and he proposed that the label "infective silicosis" should be used to denote this double causation.

THE RELATION OF PATHOLOGY TO CLINICAL MEDICINE

In addition to his interest in the problem of silicosis as such, I think that Kettle was strongly influenced by the fact that he was dealing with a disease that was causing much invalidity and many deaths, and by his realisation that effective prevention was waiting on increased knowledge which only experimental study could supply. He believed that the problem was soluble, and that he could help to solve it. Believing this he was prepared to devote such time as his other duties and his failing health allowed him to this one line of original work, though it meant abandoning many other problems in which he was keenly interested, and which might well have yielded more rapid and more spectacular results.

Neither pathology nor physiology can ignore the problems of clinical medicine, though individual pathologists or physiologists may be well advised to do so. The clinician, on his side, cannot ignore pathology and physiology. He has his own methods which he himself must develop along his own lines; but an increasing amount of clinical practice derives directly from the methods devised, and from the results obtained, in pathological and physiological laboratories, and these in their turn depend in large part on methods and results derived from the fundamental sciences of chemistry and physics. I have suggested that the medical sciences form a growing continuum of knowledge, within which there are no natural boundaries. For convenience we attach labels to particular fields of activity, and to the people who work in them. As a result of our labelling, and of the academic organisation that has arisen out of it, boundaries have been erected that involve not only separate professorial chairs and readerships but separate institutes. Some such separation was inevitable, if only for administrative purposes; but I think it is worth while to ask ourselves two questions. Does it matter? If it does, can we do anything to neutralise it?

The answer to the first question, so far as research is concerned, is, I believe, that for the really original worker, the man who will do the biggest things, it does not matter at all. He will find the niche that suits him somewhere, and if he wants help from others, or knowledge that lies outside his immediate sphere of activity, he will get it in one way or another. For the ordinary man I think it matters much more. I do not, for instance, think it is good that a young pathologist in his early or middle twenties should be labelled a morbid anatomist, or a bacteriologist, or a pathological chemist, and run in blinkers from that day onwards. If he is to go far he may, in the long run, have to be mainly one of these things, but a more general background, acquired by some years of browsing in a wider field, is far more likely to put him on a fruitful and congenial line. He will, for one thing, be able to wander in the borderlands, and borderlands are profitable places to explore.

From the point of view of the application of physiological or pathological knowledge to curative or preventive medicine I believe that the existing separation, voluntary or enforced, matters profoundly. It is, I should guess, the main reason why medical practice and medical science fail to advance as quickly as they might. If the present separation of the medical sciences is a harmful thing, can we do anything about it? I think we can.

INFILTRATION AND INTEGRATION IN MEDICAL EDUCATION

The crux is clearly education, and the medical curriculum is too difficult and thorny a question to discuss in any detail in such a lecture as this; but there is one point I would ask you to consider. I know of no other curriculum which is so frankly a system of almost disconnected examinational hedges, to be jumped and forgotten. The student does not carry much chemistry, or much physics, into his two years of anatomy and physiology. When he starts his clinical work he is sometimes told quite frankly by the surgeon that he can forget most of his anatomy, and by the physician that he can forget most of his physiology. If he fails to be told this in explicit terms, he deduces it himself from the fact that he hears little more of these subjects. By this time, of course, he needs no telling to forget his chemistry and physics. He has done that long ago.

With pathology, in its wide sense, the case is not quite so bad, for its study extends well into the clinical years; but it is bad enough. Kettle had an exceptionally wide experience of the teaching of his subject. In his early years on the staff of St. Mary's Hospital, and later when he held the chair of pathology at St. Bartholomew's, he was working under the London system, in which the teaching of pathology extends, with differences in time-table arrangements that vary widely from one school to another, throughout the three years of clinical study. During the intervening period he taught at Cardiff, where the teaching of pathology is largely concentrated in the first clinical year, as it is in most of the provincial and Scottish schools. In the last years of his life he was making plans for the post-graduate teaching of pathology, freed from the difficulties of fitting his own subject into the overcrowded mosaic of undergraduate medical teaching. He was much in request as an examiner, for he was wise and fair in the demands he made on the ordinary medical student. There cannot have been many men who have seen so much of the teaching of pathology, or of its results. What he had seen left him no illusions. He knew that, so far as the ordinary medical student was concerned, and with our present system of medical education and practice, the most that he could hope for was that he might postpone for a few years the lapse, into further forgetfulness, of those who had already forgotten so much. He taught no less devotedly or well. He had an affection for his students which was fully reciprocated. He was a great teacher, in the truest sense, because his first aim was to teach his students to think. But the medical student has little time for thought. Is it quite certain that we could not give him rather more?

There are some who shrink with horror from a "vocational" education, seeing it as black against

the white of "academic" purity. I would suggest that this contrast is altogether false. The real test of a satisfactory education in medicine, as in any other science, is that it should, at one and the same time, fit the student for the work he is going to do in life, and teach him to understand and apply the principles on which all true scientific work is based.

It is my own belief that much could be done by a system of infiltration, and in this infiltration I think that pathology, in the broad sense, has an essential part to play. I believe, for instance, that the historian of medical education in this country will regard the introduction of pathology as a tripos subject at Cambridge as a turning-point, not only because there are aspects of general pathology that can best be taught at this stage in a student's career but because the introduction of pathology of the right kind will enhance the student's interest in his physiological and histological studies, and will make clear to him, while he is pursuing them, their bearing on disease processes. Again, a course in human physiology of the kind which I was privileged to see at Manchester, in which the student is familiarised with the methods available for studying function in the living human subject, is, to my mind, exactly the kind of development that is required to induce in him the feeling that his education is continuous and relevant, rather than a series of arbitrary exercises leading to examinational tests.

We should, I think, introduce the concept of disease processes, of abnormal function and structure, much earlier, and continue the teaching of the ancillary sciences much later in the medical curriculum. I know that this would mean the scrapping of certain things that are now taught, but I would willingly let them go. If the student knows well those parts of anatomy, physiology, and pathology that have a direct bearing on his clinical work—knows them so that he can grasp their significance and can discuss them intelligently—he will be a better scientist, and a better clinician, than if his heritage from his preclinical studies is a vague recollection of a partially digested mass of unappreciated facts and theories.

I have quoted once from Michael Foster's preface to his "Textbook of Physiology," and I should like to quote again,

> "The student before whom things both new and old are tumbled out of the physiological treasury, without adequate critical appreciation of their respective values, is simply bewildered instead of being taught; and, finding that the labours of the Physiological Laboratory at Hinauf seem to be chiefly directed to contradicting the Laboratory at Hinab, very naturally concludes that he had better pay attention to neither. In physiology, as in other sciences, there is a zone of strife where truth and error mingle in conflict, and where the results of yesterday have power because they are new. But in physiology, no less than in the other sciences, this agonosphere is merely the envelope of a solid nucleus of acquired truth, which year by year grows larger at the expense of its more fluid and gaseous wrappings. And it is the duty of the teacher to bring his pupil to that which is fixed and sure, without too much display or too much neglect of that which is uncertain and loose."

I do not think that Foster would have objected if, so far as the medical student is concerned, the teacher had also been adjured to concentrate on the relevant without too much display of the irrelevant; and I know that many pathologists would accept his maxims for the teaching of their own subject. We are discussing, for the moment, the teaching of medical students, few of whom will become professional physiologists or pathologists. Those who desire to follow these activities will require a far more intensive training in their selected line of work; but, for the health of medical science as a whole, it is essential that we should maintain a common background and a common language. We do not maintain them to-day.

THE ORGANISATION OF THE MEDICAL SCIENCES

Apart from the thorny question of medical education, I think there are other things we can do if our general aim is to break down existing barriers and build as few new ones as we may. I fancy that bricks and mortar are more dangerous things than is commonly supposed, and I have a growing dislike of separate institutes where these can be avoided. Separate chairs of morbid anatomy, bacteriology, and pathological chemistry have become an obvious administrative necessity; but I profoundly mistrust the housing of this family of sciences in different buildings, nor would I give to one more than another the right to adopt the family name of pathologist.

Again, we shall do well to encourage men whose early training has been in one scientific field to migrate to another; and to look favourably on a shift of subject matter from one departmental territory to another. As subjects grow, and their technical methods extend or change, there are many problems that are best dealt with in departments other than those in which they first arose. Bacterial enzyme systems, for instance, are clearly the concern of the biochemist rather than of the bacteriologist. We should, at least, be wise not to take out patent rights in any subject, but to welcome the adoption, even of our pet problems, by anyone who is prepared to treat them intelligently.

There are other barriers that at present cut across the barriers of subject matter. In pathology, the establishment of research institutes, and of diagnostic laboratories, in addition to university and hospital departments, is tending to separate three functional classes, the research worker, the applied or so-called clinical pathologist, and the teacher. Kettle had a very keen appreciation of the true relation of routine diagnosis to research. He held diagnostic pathology in high respect. He realised fully the frequency with which research problems arise from routine investigations; and he opposed any permanent divorce of one activity from the other. But he had a clear mind, and liked to be clear as to what he was doing. If a particular series of examinations were being made for routine purposes, that was one thing. If in the course of these examinations a research problem arose, that was another. He had no liking for confused aims, or confused methods. Where pure routine was concerned, his plan was to adopt the best available methods that would give the particular answers required and to standardise them. His own mind and the minds of his staff were thus freer to concentrate on research problems, whether these had arisen from routine studies, or had their roots in more academic ground. An admirable illustration of his ability to detect a general problem in a particular observation, and to follow it fruitfully, is provided by the publication in 1919 of his much-quoted paper on polymorphism of the malignant epithelial cell, a problem in which he had been interested since his description in 1912 of the occurrence of a carcinoma and sarcoma in the same breast. Kettle would, I think, have endorsed the view that most pathological investigators are the better for a period, if only a short one, spent in diagnostic work, and that the routine worker profits greatly by an opportunity to attack some of his problems as ends in themselves.

I believe that freer movement across these functional barriers would solve many of our present difficulties. Some men will do their best work as investigators, some as teachers, and some in applying their laboratory technique to clinical or public health problems. But it is not always clear at the start where a man's gifts lie, and a change of work and experience, a few years' teaching for the research worker, a few years' continuous research for the teacher, and so on, would keep open paths that are closed by premature limitation to one field of activity.

In addition to trying to abolish such barriers as already exist we must, if we can, prevent the erection of new ones. To take one example, clinical science, which bears, I take it, the same general relation to clinical practice that academic bears to applied pathology, is rightly and rapidly developing along lines of its own. This movement is, perhaps, the most important, and the most hopeful, of the many signs that the medical sciences are developing that elusive entity known as a Group Mind. It is not, I think, altogether fanciful to note the growing evidence that the individual mind, for its healthy functioning, depends much less than we had supposed on localised and specialised areas of activity, and much more on the effective integration of cerebral activity as a whole. To ensure such integration in the growing mind of medicine we must ensure that the morbid anatomist, bacteriologist, or biochemist who works, for the time being, in a department of clinical science, is not separated in any way from his colleagues who work in the departments that are labelled morbid anatomy, bacteriology, or biochemistry.

The crux of the matter, I believe, is this. No man can compass the range of the medical sciences; but we can, if we choose, develop a common tradition, a common background of knowledge, and a common way of thought. We can do this best by breaking down existing barriers and erecting no new ones; and by training those who come after us to respect scientific method, which includes accurate and critical observation, rather than to acquire, and then forget, an arbitrary collection of unrelated fact and theory.

I may seem to have gone far beyond the limited field of pathology; but I believe that it is along these lines that pathology itself can best develop, and can best serve the medical sciences as a whole. It stretches so far, from the ward and the post-mortem room to the departments of physiology, biochemistry, and anatomy, that it must exert either an integrative or disintegrative effect. I have tried to indicate that pathology, in the course of its development, has faced its own problems, and devised its own ways of solving them; but I believe that we shall best serve medicine, and ourselves, by not stressing too strongly the particular technical methods on which we have relied in the past, and by a willingness to discard labels, or disregard them. If no one could define a pathologist except as a person who was engaged in studying the mechanisms of disease, pathologists would not cease to exist; nor would their work decrease in significance or value. If institutes of pathology housed workers who would, under our present conventions, be regarded as physiologists, or pharmacologists, or biochemists, as well as morbid anatomists and bacteriologists, and if to these could be added others whose usual label would be clinicians, we should, I think, not only increase the value of the work done in these institutes themselves but provide the personal links that alone make possible effective coöperation. For such a development to be fully effective there would, I think, have to be free and frequent interchange. It would become a matter of temporary convenience whether a man worked in the department of physiology or the department of pathology, or whether another chose, for the moment, to regard himself as a bacteriologist or a biochemist. It would be essential that there should be no prescriptive rights to senior posts, that a man should not, because he chose to wander between two or more departments, be debarred from normal promotion in any one of them. I do not think that this is an impossible solution of our difficulties; indeed, many of the suggestions I have made are no more than descriptions of what, in some places, is happening already.

There is one factor on which the success of all such dreams depends, and that is the personal one. Coöperation can never be forced, though it can be encouraged. By Kettle's death we have lost one of our number who had the gift of true coöperation at its best. He had the widest interests and the widest sympathies, and was always able to view his own problems in relation to those of others. A master of his own craft, he loved good work wherever it was done, and had a wonderful gift for telling good from bad, even in subjects widely separated from his own. He was always ready to help those who were willing to help themselves, though he had little patience with those whose idea of coöperation was that somebody else should do their work for them. His courage, patience, cheerfulness and understanding made it easy for those who worked with him to face without boredom or fatigue the dull patches and the disappointments that come to all investigators, while any discovery shared with him gained in interest and excitement. He could be critical without any touch of discouragement, and he was generous to a fault, especially towards younger men. His last years were spent in laying the foundations of the pathological department of the British Postgradnate Medical School, and in the last few days of his life he was thinking of its interests. He has left behind him a memory and an example that none of us will forget.

THE LANCET 100 YEARS AGO

December 1st, 1838, *p.* 381.

From the review column.

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WHEN works of this description are executed with sagacity, research, and industry, they become treasures of no ordinary value to the members of our profession. . . . In the contents of the present Annual we find a Calendar; Tables of Heat and Dryness for the last ten years; Information relating to all the chief Hospitals, Infirmaries, Medical Colleges, Boards, Schools, and Societies, the Universities, and Lunatic Asylums; a Paper by a Clergyman on the Misarrangements and Arrangements of Hospital Staffs; A History of the Medical Profession; Statistics of the Kent Hospital; A Paper on the Pathology of the Heart; one on American Temperance; one on the Mortality of Cholera; one on the Diseases of the Army; and one on Private Medical Practice.

. . . We shall make from it a few extracts on another occasion, and in the mean time cordially introduce the volume to the notice and patronage of the profession.

HERNIA OF THE VERMIFORM APPENDIX

A RECORD OF SIXTEEN PERSONAL CASES

By Cecil P. G. Wakeley, D.Sc. Lond., F.R.C.S., F.A.C.S., Hon. F.R.A.C.S., F.R.S.E.

SENIOR SURGEON AND LECTURER IN SURGERY AT KING'S COLLEGE HOSPITAL, LONDON; SURGEON TO THE BELGRAVE HOSPITAL FOR CHILDREN; AND CONSULTING SURGEON TO THE MAUDSLEY HOSPITAL AND TO THE ROYAL NAVY

Hernia of the vermiform appendix is well known as a clinical entity and, according to the literature, amounts to over 1 per cent. of all herniæ; but it is not perhaps realised how often retrograde strangulation of the appendix occurs. My series of 2000 hernia cases operated upon between 1915 and 1937 includes 10 cases of hernia of the vermiform appendix distributed as follows:—

Inguinal hernia	1232	Appendix present in	12
Femoral "	610		3
Umbilical "	155		1
Obturator "	2		0
Sciatic "	1		0
	2000		16

As would be expected, inguinal hernia of the appendix is the most common form and it is almost confined to men. The appendix not uncommonly comes in contact with the internal abdominal ring and this ring is much larger than the femoral ring. Femoral hernia of the appendix, on the other hand, is seen almost exclusively in women and is much less frequent than the inguinal variety. The sac is, as a rule, smaller in the femoral hernia, and hence there is a greater tendency for the appendix to be strangulated. In the past this has led to the erroneous conclusion that femoral hernia of the appendix is commoner than inguinal hernia of the appendix. When operating on a large inguinal hernia it is my custom to remove the appendix, if the cæcum can be drawn down into the sac with ease; but naturally such cases do not come under the heading of hernia of the appendix.

In the 10 cases which I am recording the appendix was adherent to the sac and could not be excised without division of the adhesions (Fig. 1). In nearly all the recorded cases of inguinal hernia of the appendix adhesions were present.

RETROGRADE STRANGULATION

In 3 cases retrograde strangulation was found (Fig. 2), and this is an interesting complication which I believe to be far more common than is supposed because the cases are not considered important enough to report singly. In all probability the appendix is abnormally long in some cases, as in No. 16 (see Table). In retrograde strangulation the central part of the appendix is caught in the opening of the hernial sac, while the tip and the base remain inside the abdomen. There can be no doubt that in these cases a mild attack of appendicitis has led to adhesions, which in turn result in a kinking of the appendix prior to the entry into the hernial sac. Once inside the hernial sac pressure is exerted at two points on the flexed appendix and there is obstruction to the blood-supply, leading to gangrene of the distal portion of the appendix. In my 3 cases the diagnosis made was strangulated inguinal hernia and the correct state of affairs was only found at operation. As these cases all gave the same symptoms it is thought that an account of one will suffice.

Case 14.—A bank clerk, aged 35. He had enjoyed good health up to the age of 28, when he married and gave up all forms of outdoor sport and exercise. In consequence he put on weight and became constipated. As a baby he had been treated for a rupture on the right side by means of a wool truss. The rupture was not noticed after the age of three years. While at school he had had several attacks of abdominal pain which did not necessitate his going to bed or seeing the doctor. After the age of 32 his constipation became worse and he never had a motion without purgatives. While at the bank on June 5th, 1935, he was seized with acute abdominal pain and vomited several times. He was seen by a doctor at the bank who diagnosed a strangulated right

TABLE SHOWING DETAILS OF SIXTEEN CASES OF HERNIA OF THE VERMIFORM APPENDIX

No.	Date.	Sex.	Age.	Variety.	Congenital or acquired.	Predisposing cause.	Complications.	Treatment.*	Result.
1	10/x/15	M.	42	Inguinal.	Acquired.	Visceroptosis.	Nil.	Radical cure.	Good.
2	21/i/16	M.	2	Inguinal.	Congenital.	Long mesentery to cæcum.	Nil.	Excision of sac.	Good.
3	5/v/18	M.	56	Inguinal.	Acquired.	Ptosis.	Appendix abscess.	Drainage.	Hernia recurred in six months.
4	3/iii/19	M.	42	Inguinal.	Acquired.	None found.	Nil.	Radical cure.	Good.
5	4/vi/22	F.	61	Femoral.	Acquired.	Pregnancies (16 ch.).	Strangulation.	Radical cure.	Good.
6	8/x/25	M.	45	Inguinal.	Acquired.	Visceroptosis.	Nil.	Radical cure.	Good.
7	6/viii/27	M.	1	Inguinal.	Congenital.	Congenital cæcum.	Nil.	Excision of sac.	Good.
8	10/ix/27	F.	68	Umbilical.	Acquired.	Obesity and bronchitis.	Acute appendicitis.	Excision of sac and drainage.	Died.
9	11/viii/28	M.	52	Inguinal.	Acquired.	General ptosis.	Nil.	Radical cure.	Good.
10	14/iii/29	F.	67	Femoral.	Acquired.	Pregnancies (12 ch.).	Femoral thrombosis.	Radical cure.	Satisfactory.
11	10/iv/30	M.	46	Inguinal.	Acquired.	None found.	Retrograde strangulation.	Radical cure.	Satisfactory.
12	4/iv/32	F.	62	Femoral.	Acquired.	Pregnancies (15 ch.).	Nil.	Radical cure.	Good.
13	2/iii/34	M.	40	Inguinal.	Acquired.	None found.	Nil.	Drainage.	Good.
14	5/vi/35	M.	35	Inguinal.	Congenital.	Constipation.	Retrograde strangulation.	Radical cure.	Good.
15	10/iii/36	M.	43	Inguinal.	Acquired.	None found.	Nil.	Radical cure.	Good.
16	5/viii/37	M.	51	Inguinal.	Acquired.	Long appendix (8 in.).	Retrograde strangulation.	Drainage.	Good.

* The appendix was removed in all cases.

FIG. 1.—Adherent appendix in the sac of an inguinal hernia.

inguinal hernia and sent him to hospital. On examination there was a swelling in the right inguinal canal which was very tender; it was dull on percussion and there was no impulse on coughing. The patient looked ill and vomited frequently. The temperature was 100° F. and the pulse-rate 96.

Immediate operation was performed under gas-and-oxygen anæsthesia. An incision was made over the swelling and the external oblique aponeurosis divided in the direction of its fibres. The swelling was found to be a tense hernial sac which was incised and about 6 oz. of dark fluid was evacuated. At the neck of the sac a piece of bowel was seen to completely block the lumen. The sac was slit up until the extra-peritoneal fat was seen and the portion of bowel was found to be a kinked appendix which was doubled on itself; it was drawn downwards and it was seen that the distal third of the appendix was gangrenous. There had been a retrograde strangulation of the appendix. The cæcum was gently pulled down, the appendix was removed, and a purse-string suture was inserted round its base, and the stump of the appendix was buried in the cæcum. The neck of the hernial sac was transfixed and the sac removed. Two catgut sutures were used to approximate the deep aspect of Poupart's ligament to the conjoined tendon. The external oblique was united by a few interrupted silkworm-gut sutures. A small corrugated rubber drain was inserted and the skin united with interrupted silkworm-gut sutures. The patient made an uninterrupted recovery and left hospital fifteen days after his operation. When seen six months later he was quite fit; the scar was sound and showed no sign of weakness or bulging and he stated that his constipation was cured.

ACUTE APPENDICITIS IN THE HERNIAL SAC

Among the 12 cases of inguinal hernia of the appendix there was only 1 with acute appendicitis in the hernial sac (No. 3). This is rather surprising in some ways because once the appendix enters the sac, and adhesions form so that it is retained, the appendix must be subjected to repeated trauma and its blood-supply may in part be cut off or considerably reduced. The very contractions of the musculature of the abdominal wall and any increase of intra-abdominal pressure will cause compression of the appendix.

CASE 3.—A deck hand aged 56 was admitted to H.M.H.S. *Garth Castle* on May 5th, 1918, with a right strangulated inguinal hernia. He had been ill for three days. On examination a large irreducible tender swelling occupied the right inguinal canal. There was no impulse on coughing and the swelling was dull on percussion. An operation was performed under open ether anæsthesia. The hernial sac was exposed and found to be considerably thickened; on opening it a large amount of pus escaped. On mopping out the cavity a gangrenous appendix covered with sloughs was found to occupy the whole of the sac. The sac was opened up to its neck and the base of the appendix was freed from the sac. The base of the appendix was crushed and ligatured, and the stump buried in the cæcum with a purse-string suture. The sac was transfixed and removed. No deep sutures were inserted and no attempt was made to reconstruct the inguinal canal. A rubber drain was inserted down to the region of the internal abdominal ring and a few sutures were inserted into the external oblique and the skin. The wound became infected but healed after three weeks. The patient was sent south to a base hospital. In reply to a letter six months later he said he had developed a hernia at the site of his former operation.

It is interesting to note that this man had worn a truss for seven years before his operation and only removed it the day he was transferred to the hospital ship because it caused him pain. There can be no doubt that if a patient has his appendix in a hernial sac the wearing of a truss must predispose to appendicitis.

FEMORAL HERNIA

Femoral hernia of the appendix nearly always occurs in women and there can be no doubt that repeated pregnancies play their part as a predisposing cause. Owing to the smallness of the femoral canal strangulation is more common than in inguinal hernia. In my series strangulation was present in 1 out of 3 cases; this case of strangulation was of interest.

CASE 5.—Mrs. A, aged 61, was admitted to hospital on June 4th, 1922, with a strangulated right femoral

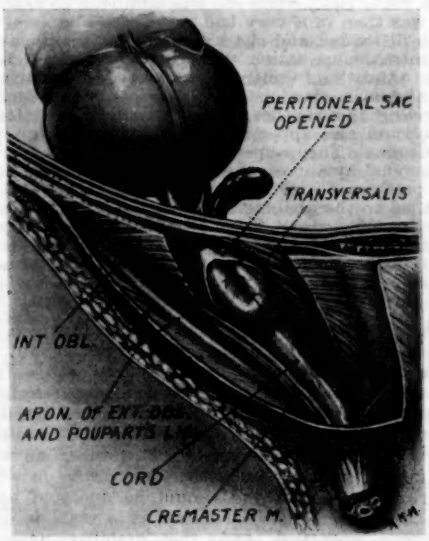

FIG. 2.—Retrograde strangulation of the appendix.

hernia. She was the mother of 16 children, 12 of whom were living. The rupture had first appeared at the age of 27, while she was carrying her sixth child, but it did not give her much trouble and her doctor made light of it. At times after this she had attacks of pain which usually passed off if she rested in bed. Four days before admission to hospital she was seized with acute pain in the right groin and went to bed. The pain was relieved for a time but never disappeared. The relatives of the patient advised her to take some castor oil, which she did, and six hours later the pain was much worse and she began to vomit.

On admission the patient appeared to have a strangulated right femoral hernia and an immediate operation was performed under open ether anæsthesia. A vertical incision was made over the rounded swelling in the right groin and the hernial sac isolated. The fundus of the sac was incised and some pus evacuated. On examination of the interior of the sac its contents were found to be a gangrenous appendix coiled up on itself. To give more room Gimbernat's ligament was incised and the base of the appendix was pulled down into the sac. Further gentle traction brought the cæcum into view and allowed the base of the appendix to be crushed and its stump invaginated into the cæcum. The hernial sac was then transfixed and removed. Three stitches were inserted through the fascia over the pectineus muscle, which united that structure to Poupart's ligament. The skin was closed with interrupted sutures and a drainage-tube employed for four days. Recovery was uneventful.

UMBILICAL HERNIA

Umbilical hernia of the appendix is rare and other viscera besides the appendix are always found in the sac. My case was a fatal one, and had the following history:—

CASE 8.—Mrs. B, aged 68, was known to have had an umbilical hernia since infancy. At the age of 45 the hernia gradually increased in size and at the same time the patient began to put on weight. At the age of 50 the rupture could not be replaced and her weight was 18 st. Six days before admission to hospital she had great difficulty with her bowels and took salts. The bowels did not act but the patient felt sick and went to bed. The bowels did not move and she became more and more distressed until Sept. 10th, 1937, when she was admitted to hospital. She was then in a very bad way; the abdomen was much distended and she was vomiting continuously. An intravenous saline was given and eight hours after admission, under gas-and-oxygen anæsthesia, the abdomen was opened by an elliptical incision encircling the rupture. The hernial sac contained the cæcum and appendix, the transverse colon, and omentum. The appendix was gangrenous and surrounded by a mass of omentum. Appendicectomy was performed and the contents of the hernial sac returned to the abdomen. The sac itself was excised and the thinned-out linea alba was overlapped and sutured. A drainage-tube was inserted beneath the skin which was united by interrupted silkworm-gut sutures. The patient stood the operation well but died three days later of pneumonia.

There can be no doubt that the hernia which this patient had in childhood persisted throughout her life and was in the end the cause of her death. There is a very great deal to be said for operation for umbilical hernia in infants which are not cured by the use of a small truss. Too often the mother is told the child will grow out of the rupture, and while this is true in many cases there are others in which the rupture persists and should be operated upon. The cure of an umbilical hernia in a child is quite a simple operation and the umbilicus can be retained.

SUMMARY

1. Sixteen cases of hernia of the vermiform appendix are reported.

2. Retrograde strangulation is more common than is usually thought.

3. The appendix is far more frequently found in an inguinal hernia than any other variety.

4. The predisposing causes are in the main visceroptosis in the male and repeated pregnancies in the female.

PERCUTANEOUS ABSORPTION OF MALE HORMONE

ITS PRACTICAL APPLICATION TO HUMAN THERAPY

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FOR some time it has been known that male hormones are absorbed into the blood stream through stratified epithelium when an oily solution of androsterone or testosterone is brushed or rubbed on to the capon's comb (Fussgänger 1934, Dessau 1935a and b, Dessau and Freud 1936). Dessau (1937) extended this preliminary finding and showed that the actions of the various androgens used do not differ so greatly when they are applied by inunction as by injection.

Mühlbock (1938) tried inunction when comparing the antagonistic action of œstradiol on testosterone, and Danby (1938) confirmed an assay for male hormones on six-day-old chicks using this method, the experiment having originally been described by Frank and Klempner (1937). In all of these experiments local application to the comb was made in order to observe its growth.

Deanesly and Parkes (1937) applied free testosterone, testosterone acetate, and testosterone propionate dissolved in oil or propylene glycol to the shaved backs of castrated rats but found that for internal test objects (prostate and seminal vesicles) inunction is not a very efficient method of administration, whereas when applied to the capon's comb the application is about 200 times more effective by inunction than by the subcutaneous route.

More recently the cutaneous application of sex hormones has been investigated on a larger scale by Moore, Lamar, and Beck (1938), when testosterone and testosterone propionate in a concentration of 50 mg. per ounce of cream was rubbed into the shaved and unshaved backs of guinea-pigs and rats. They state that the accessory reproductive organs were found to be normally maintained in castrated males—developed precociously in the young and decidedly above normal level in adults.

When given by inunction in a cream, therefore, these androgens exert effects similar to those obtained by subcutaneous injections. Moore and his collaborators state that "when hormone therapy is indicated, administration as skin ointment may prove to be the method of choice."

Although accounts have been published on the percutaneous absorption of œstrogens in the form of ointment (Loeser 1937, Zondek 1929 and 1935) and alcoholic tincture (Zondek 1938) the application of androgens in this manner to humans has not been recorded. Suitable test cases are probably few,

and, as the production of large quantities of testosterone and testosterone propionate is comparatively recent, human experiments have so far been limited.

Since June I have had the opportunity of observing the effect of an ointment of testosterone propionate (25 mg. per gramme) on three cases—a post-puberal eunuch aged 38, a case of impotence in a man of 60 who had had bilateral orchitis due to mumps, and a youth of 18 with delayed puberty. More recently, following Zondek's (1938) account of the inunction of alcoholic solutions of œstradiol and œstrone on women, I have compared the effect of alcoholic solutions of testosterone and testosterone propionate on this eunuch. These different forms of percutaneous application will be described separately.

POST-PUBERAL EUNUCH

A man of 38. Accounts of this patient's complete history and treatment are published separately (Foss 1937 and 1938). Unlike most eunuchs or eunuchoids, he is particularly intelligent and coöperates well so that his observations are valuable.

Percutaneous application was started on June 7th, 1938, four days after the last injection had been given. Previously he had become completely impotent within five or six days of stopping injections. An *ointment of testosterone propionate*, 25 mg. per gramme in a bland base contained in collapsible tubes, was used. He was instructed to rub in a strip an inch long, which weighed approximately 0·75–1 gramme and contained about 18–25 mg. testosterone propionate. This was rubbed into the skin of the thighs and abdomen once daily, after washing with soap and hot water to remove some of the grease. After eight days he reported that his potency was not only maintained but erection was extremely powerful and effortless and the peculiar sensation at the base of the penis which was characteristic of testosterone and testosterone propionate was continually present. This sensation was difficult to describe but directed his attention continuously to his penis and made him conscious of the feeling of impending erection. With this dose erection occurred frequently during the day and was sometimes inconvenient. He stated that this application and dosage gave a much greater effect than was obtainable with intramuscular injections, and that coitus was normal. The dose was accordingly reduced to a strip half an inch long (about 8–15 mg.) on alternate days but the effect was not sufficient. He found that the ideal form of therapy for him was to rub in a one-inch strip for three consecutive nights. The effect produced was strong enough to last three or four days, but it took 24–30 hours before the maximum potency was reached. By this means coitus took place two or three times a week. This application was continued until July 7th, and in thirty days he had used 1¼ tubes of ointment, each containing about 18 grammes—that is, 550–600 mg. in thirty days, or roughly an average of 18–20 mg. daily.

After a week of almost complete impotence after stopping inunction, further treatment was given with an *alcoholic solution of testosterone*, 10 mg. per c.cm. dissolved in 96 per cent. industrial spirit. At first the accurate dose was measured in a 1 c.cm. syringe out of a rubber-capped bottle, sprayed on the washed skin and well rubbed in by the naked hand. The initial dose used was 1 c.cm. (20 mg.) twice daily. After twelve days erection was not so complete as before and coitus was managed with difficulty. The dose was accordingly doubled. After all this percutaneous application, he reported that the hair on his abdomen was growing rapidly. During this period his wife was menstruating and he experienced pollution twice. In each case he was woken up by a pumping rhythmic ejaculation of a large volume of seminal fluid. He was not given any hormone from August 1st to 5th, and as a result he was almost impotent again.

A trial was then made of an alcoholic solution of testosterone in small drop bottles containing 10 c.cm. (5 mg. per c.cm. of rectified spirit). By using the specially designed stopper a steady flow of drops could be obtained, about 50 drops being equal to 1 c.cm. Beginning on August 5th 40 drops were rubbed well in twice daily (8 mg. daily), but as the effect was negligible the dose was increased to 10 mg. daily. On the 15th, as erection was only moderately strong, the dose was increased to 100 drops twice daily (20 mg. daily) and coitus with ejaculation was possible but not powerful. On the 19th the dose was increased to 200 drops twice a day (40 mg. daily) and the effect was almost as good as that of the ointment. Coitus, orgasm, and ejaculation took place on the 20th and 21st.

From August 25th the same dose of testosterone (40 mg. daily) was given in an alcoholic solution containing 10 mg. per c.cm. and by this means the normal effect was maintained. After two days' rest 40 mg. daily of testosterone was continued. Hair was seen to be growing more thickly on thighs, legs, and calves. After a comparison of this solution with the ointment, he was of the opinion that when using the ointment libido was stronger and he had less control over erection.

From Sept. 2nd he was given *testosterone propionate in an alcoholic solution* containing 10 mg. per gramme. After three days on 60 mg. daily he found that erection occurred more often by day. He said his muscles were firmer and he felt more pugnacious; he nearly had a fight with a workmate. On this dose he was very virile and more normal behaviour was obtained with 40 mg. of testosterone daily.

Once again he was given plain testosterone solution, 60 mg. daily, with an equally powerful effect. Further comparisons between the same dose of testosterone and testosterone propionate in this form are being made, as it is still uncertain whether the pure hormone or its ester is the more potent by this route, when applied twice daily.

A EUNUCHOID

A man aged 60, giving a history of bilateral orchitis after mumps at the age of 22, complained of impotence. He had undergone a testicular graft from a monkey in 1932 by Voronoff because he was keen to marry again. Following the orchitis he had not been sterile for he had two children. The result of the graft was a definite increase in vitality and better general health which lasted about a year, but he still remained impotent.

He was a thoroughly healthy man with increased subcutaneous fat on his breasts, abdomen, and buttocks. There was no axillary hair, pubic hair was of the female type, and the limbs, abdomen, and thighs were almost free. After a preliminary course of injections of testosterone propionate potency was regained, evidenced by frequent erection during the night and on waking. No attempts had been made at coitus as he was no longer married.

Local inunction of an ointment of testosterone propionate (25 mg. per gramme) was started on June 11th, 1938. A strip an inch long was rubbed well into the washed skin of the abdomen and thighs daily—an approximate dose of 18–20 mg. The feeling of longing for female company which had been noticed while having injections now gradually developed into desire. After about a month of this therapy, which was then being used twice daily, a very strong growth of hair was found on the axillæ, thighs, arms, and lower abdomen, on which sites it had been absent for twenty-five years. A month later hair was appearing on the chest, and he was being wakened each night by erection accompanied by the desire for coitus.

On Sept. 9th he reported that he felt that his sexual function was now satisfactory and he had decided to marry again. Since marriage he has continued his inunction twice daily, and coitus is enjoyed several times a week with satisfaction. Occasionally

slight difficulty is experienced with intromission owing to incomplete turgescence but this can be remedied by increasing the dose.

An injection of about 100 mg. testosterone propionate has been given every month or five weeks since adopting the percutaneous application. Apart from the maintenance of sexual function, the most obvious effects have been the new growth of hair and an increase in virility enabling this patient of sixty to play 36 holes of golf in a day without undue fatigue.

CASE OF DELAYED PUBERTY

A youth of 18 was referred to me by Mr. Angell James because his voice had not broken. Puberty had occurred at about 15½ years when his voice had started to change.

When seen, the youth was tall and well built—5 ft. 11 in. in height and weighing 10 st. 2¼ lb. with a 34-in. chest. Pubic hair was of the female type not extending up the abdomen. The genitalia were fairly well developed, but the left testicle was a little smaller than the right. The voice was almost continuously of a high pitch, cracking a little occasionally and his parents stated that it had been unaltered for 2½ years.

His treatment was started on Feb. 26th, 1938, and 3500 mg. testosterone propionate was given by injection in ten weeks without much apparent effect, though erections were slightly more frequent and the hair increased on his thighs and pubes. A period of eight weeks' holiday followed in which no treatment at all was given and no further change in the voice was noted. Intensive treatment was started again on August 10th and he was given 2100 mg. by injection in the next six weeks. The voice was now deep for more frequent periods but it lapsed into a high-pitched cracked note most of the time. On Sept. 7th he started using testosterone propionate ointment (25 mg. per gramme) rubbed into the skin of the neck over the larynx twice daily, in inch strips. After a month of this therapy and having left off injections on Sept. 17th his voice became very deep and remained so. In this time he used only one tube of 18 grammes containing a total dose of 450 mg., whereas by injection he had received a total dose of 5600 mg. in twenty-four weeks with no marked effect. There is no doubt that intensive injection therapy caused more frequent periods of lowered voice tone but it was only after using the ointment for a month, during the last fortnight of which no injections were given, that the dramatic fixation of pitch was obtained.

DISCUSSION

So far I have compared the effect by the percutaneous route of testosterone and testosterone propionate only in alcoholic solution, because owing to technical difficulties it has not yet been possible to produce an ointment containing pure testosterone in a concentration greater than 5 mg. per gramme of fatty base.

According to Moore, Lamar, and Beck (1938) the effect of testosterone is more potent than that of the propionate in ointment form. I am not certain, after such short human experience, when one is unable to weigh the test objects and can only compare subjective sensations, whether testosterone in an alcoholic vehicle is more potent than its propionate. In my experience the inunction of testosterone propionate in an ointment base is so far the most efficient method of percutaneous androgen therapy, but, even so, between two and three times the dose effective by subcutaneous injection (40–60 mg. per week) is necessary; when using the solution an equivalent effect is obtained only after rubbing in between five and six times this amount. This may possibly be explained by the difference in vehicle and the wastage due to non-absorption.

Experiments in Schering's laboratories in Berlin show that the efficiency of subcutaneous and of percutaneous medication in 96 per cent. alcohol with castrated rats are in the proportion of about 1 : 6, using the seminal vesicle as the test object. My clinical results agree favourably with these experimental figures.

Much more rubbing is necessary before the greasy ointment is worked into the skin and disappears than when applying the alcoholic solution which evaporates rapidly and gives the patient the impression that the hormone is then completely absorbed. Allowing, however, for this wastage, the local effect—e.g., on hair growth and development of the penis and larynx—is greater with percutaneous medication than injection, which bears out the original experiment on the capon's comb. There is no doubt, also, that the maintenance of prostatic and vesicular secretion is sustained by the percutaneous route, for the eunuch has a normal ejaculate after four months of percutaneous application only.

Recently I have added 10 per cent. of castor oil to all the alcoholic solutions, because the slight oily film left after evaporation of the spirit encourages further and prolonged rubbing; but no results are yet available.

An advantage of solution over ointment is that an exact dose may be measured, but in future the ointment may appear for sale in collapsible tubes of 2 grammes containing 50 mg. of hormone which will allow a more accurate average dose to be estimated. Improvements in the base itself will probably reduce the wastage from non-absorption. Alternatively, tubes of 25 grammes of ointment containing 2 mg. of hormone per gramme would necessitate much more rubbing in of smaller quantities of hormone.

It seems that this method of application of male hormone is most acceptable to the patient who desires a maintenance dosage, whereas subcutaneous injection will be reserved for initial intensive therapy or for a periodic depôt dose. Further, this is at present the simplest method of androgen therapy, for unfortunately the great things expected of the implantation of solid testosterone or its propionate in humans have been negatived by the fact that (as I have shown in some unpublished work) absorption occurs at the rate of about 40 per cent. per month. This would mean that very large amounts of hormone would have to be implanted at least four times a year. Dr. Parkes suggests to me that some other ester, perhaps the butyrate, would be more suitable.

SUMMARY

The percutaneous application of testosterone propionate in a fatty vehicle and an alcoholic solution has been investigated for potency and optimum dosage in three patients—a post-puberal eunuch, a eunuchoid, and a case of delayed puberty—and their effects have been compared with those of a solution of testosterone in alcohol.

This method of giving male hormone is effective and simple but a larger dosage is required than when the hormone is given by injection.

An ointment containing 25 mg. of testosterone propionate per gramme in 2-gramme collapsible tubes is recommended for practical use as the most efficient means of percutaneous androgen therapy at present available.

I am indebted to Dr. H. Neumann of Messrs. Schering for samples of testosterone in rectified spirit and for crystalline testosterone; to Dr. A. Macbeth of Organon Laboratories for samples of crystalline testosterone, testosterone propionate, and

ointment containing testosterone propionate; and to Mr. E. Lloyd of the Bristol Royal Infirmary for preparing solutions of these hormones in alcohol.

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TESTING THE KNEE-JERK

AN ALTERNATIVE METHOD

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THE test to be described was suggested, some years ago, by Liddell and Sherrington's experiments on myotatic reflexes in lower animals (Liddell and Sherrington 1924 and 1925). After the test had been tried for several years on my pupils and other undergraduates, a cinematographic record* was made and projected before the Physiological Society at its Cardiff meeting in December, 1937; at the same meeting the technique was demonstrated to and upon various members of the society. It now seems worth while to publish details of the test, so that others more directly concerned with clinical work may try it and decide if it has a sphere of usefulness as an adjunct to the commoner tests.

METHOD

The patient lies supine on a table with his lower legs hanging down comfortably over its edge. He then takes his mind off what is happening, while the observer raises one lower leg and holds it horizontal by a grip on the shoe-laces (Fig. 1). When this grip is relaxed, the lower leg drops for a short distance before the drop is arrested by a sharp contraction of the extensor muscles of the thigh. After this arrest the lower leg often falls farther until it is vertical; but the extent and rate of the further fall vary with the *conscious* reaction of the patient to the sharp extensor contraction. The response can be tested simultaneously in both legs.

The muscles seem to be much looser in some persons than in others, and in these it may be necessary to take up some of the slack before applying the test. This can be done as shown in Fig. 2. One of the observer's hands is placed under the patients' knee and raises it, so that the thigh makes an angle with the top of the table. With the other hand the observer holds the lower leg horizontal until he is ready to make the test. It is easy for the observer to know if he is taking the full weight of the leg—i.e., if the patient's mind is fully distracted from the test. "Re-enforcement" can be applied in the usual manner by getting the patient to clench the hands together.

RESULTS

Not all persons respond to the test, because not all persons can take their mind off what is happening. For instance, such children as I have tested have been irresponsive, presumably for the reason given, and some adults come into the same category. On the other hand, a large proportion of adults give a reaction at the first test, and others respond so soon as they learn to concentrate on matters other than the test, while it is being carried out.

The amount of the drop varies very much with the individual, but in a given individual it is remarkably constant, provided that he is not fatigued. If he is fatigued, the drop is greater than normal.

In one person (J. M. P.) the amount of the drop was only 3 cm., but this is exceptionally small.

Two undergraduates, some years ago, gave very brisk immediate reactions to the test, though they were irresponsive to the ordinary test with the percusssion hammer. A laboratory assistant also responded, if only once, to the test, though he states that he has never responded to the percussion hammer.

DISCUSSION

At the Cardiff meeting I referred to the response as a myotatic reflex and was promptly asked what evidence I had for its reflex character. One could legitimately ask the same question about the usual percussion-hammer test, but that is scarcely an answer to the question; nor is the diminution in the amount of drop, that is produced by re-enforcement, any real proof of a reflex character. On the other hand, the extreme smallness of the drop in J. M. P. suggests a reflex rather than a conscious effort, and my own impressions are that I respond without any such effort.

* I wish to thank Mr. C. E. M. Wenyon for acting as subject.

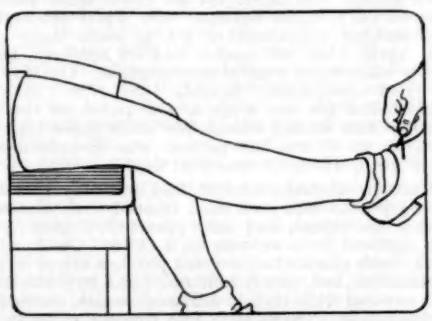

FIG. 1—Usual initial position for the new knee-jerk test.

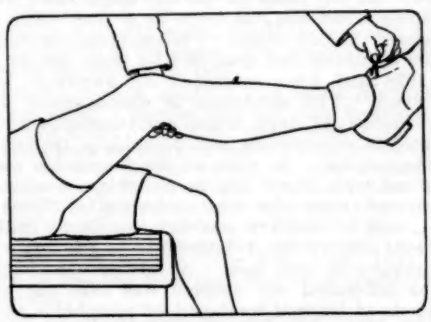

FIG. 2—Alternative initial position for the new knee-jerk test.

For description of both figures see text.

The new test has the following advantages over the usual test:—

(1) The stimulus applied is a standard one. (2) It is related to the patient's own build, inasmuch as it is provided by the fall of his own lower leg. (3) The test can be applied simultaneously to both legs. (4) The amount of drop can be measured in degrees from the horizontal and so can serve as a quantitative record. (5) No instrument is required.

The disadvantage of the test is the difficulty encountered by some persons in taking their attention off what is happening.

SUMMARY

A new and simple method for testing the knee-jerk is described. It is not universally applicable, but sometimes it may prove a useful adjunct to the usual tests.

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BAYER 205 IN THE TREATMENT OF LUPUS ERYTHEMATOSUS

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THE problem of the treatment of lupus erythematosus has by no means been solved. External chemical and physical (solid carbon dioxide and Finsen rays) treatment may be combined with the internal administration of arsenic derivatives, gold compounds, and bismuth salts. Good results have been achieved by all these methods, but they all have to register fairly frequent failures; particularly well known are the unpleasant secondary effects of the gold preparations, often after only small doses. Hence Pautrier (1936) is fully justified in saying that we have not yet found *the* remedy for lupus erythematosus, and that much experience and a rare intuition are essential in its treatment.

At the beginning of 1935 I was consulted by a patient suffering from a lupus erythematosus of several years' standing, which had been treated in various clinics with gold preparations and other methods without satisfactory results (see Case 1). She had received strong quartz-light irradiation shortly before she came to me, and she had a typical butterfly lesion of the face, exhibiting sudden deep flushes and infiltrations of the old patches on the cheeks with moderate exudations and seborrhœa-like scales. At one focus on the left cheek there was a pemphigus-like bulla as large as a pea, which had appeared the day before. I remembered the Senear-Usher syndrome first described by these two authors in 1926 and later confirmed by numerous other observers. This syndrome is characterised by a combination of true lupus erythematosus with a dermatitis seborrhœica and pemphigus (pemphigus erythematodes). In view of the favourable results obtained with Bayer 205 in pemphigus continually mentioned since the communication of Veiel in 1931, and of which I was also convinced through personal observation, I determined to use Bayer 205 (Germanin) in this case. A further consideration which influenced my decision was that the usual methods of internal treatment of pemphigus and of lupus erythematosus are surprisingly similar; arsenic preparations (arsphenamine, Spirocid), gold preparations, quinine, and Plasmoquine are equally recommended in both affections. Further, in both an ultra-virus is accepted by many authors as the causal agent. Therefore I gave Bayer 205 to this patient, and the favourable results led me to treat other patients with lupus erythematosus in the same manner.

According to prescription, Bayer 205 was injected in a 10 per cent. solution intravenously and very slowly. An absolutely sterile solution was prepared with freshly distilled water immediately before the injection. The urine was carefully examined (including microscopy) before each injection. The intervals between the injections were about 5–7 days. The initial dose in each case was 0·25 g.; in general, the average doses were 0·5–0·6 g., but doses of 0·7–1·0 g. were also given and were borne without any bad effects.

Complications were observed in only 2 cases out of the total of 117 injections given in 13 cases. In one case (No. 6) the patient was menstruating; 5 days after an injection of 0·5 g. there were fever (102° F.), lower abdominal pains, glandular swellings, severe nausea, albuminuria, and a severe scarlatiniform exanthem. After three intravenous injections of sodium thiosulphate, 1·0 g. each, the symptoms had nearly disappeared. In the second case (No. 10) the anæmic patient complained of giddiness and headache as well as nausea after the 5th injection of 0·6 g.; here, too, the symptoms disappeared after several days without further sequelæ. Slight nausea and headache, which however disappeared entirely a few hours after the injection, were often complained of by the patients.

CASE RECORDS

CASE 1.—Female, aged 24, with lupus erythematosus for 3½ years, had been treated with ointments and with gold and other unspecified injections (the last treatment being about 8 months ago for 4 weeks), and three applications of quartz-light in the last 10 days. There had been redness and swelling of the face for some days. On March 2nd, 1935, the affection was distributed in typical butterfly formation over both cheeks, the root of nose, and the right eyelid; there were also two patches on the chin. Redness was severe. A few patches were infiltrated and covered with seborrhœiform crusts, 2·5–4 cm. in diameter. At the edges of the diseased part there were scales and slight keratosis. On an oval patch of the left cheek, about 3 cm. in diameter, there was a pemphigus-like bulla about 1 cm. in diameter.

Bayer 205, 0·25 g., was injected intravenously for the first time on March 3rd, and between March 8th and 25th four injections of 0·5 g. each were given. On April 1st all spots were pale and showed only slight scaling. On April 1st and 8th two further injections of 0·5 g. each were given. On April 15th all spots had completely healed, partly with slight central cicatrisation. On May 15th all had completely healed. On Nov. 24th the patient had for one week a new patch at the right eyelid; this healed completely after three injections of 1·25 g. When the patient was re-examined on April 14th, 1936, all was still healed.

CASE 2.—Female, aged 26, had lupus erythematosus for 1¼ years. She had been treated with ointments, gold preparations, and light (quartz?, Finsen?). She had suffered from eczema as a child. On April 5th, 1935, both cheeks had several patches about 5–7 cm. in diameter, red, partly infiltrated and hyperkeratotic, and covered with tightly adherent scales, particularly at the edges. There were two smaller spots at both sides of the neck and another on the forehead. Between April 6th and May 2nd five injections of Bayer 205, amounting to 2·25 g., were given. The

* An obituary notice of Dr. Chajes, who has died since this article reached us, appears on p. 1330.

treatment had to be interrupted for reasons not connected with the illness. On May 2nd the spots were much better but still slightly infiltrated and reddened; scales were less, partly quite gone. When the treatment was resumed on June 30th the condition was the same except for a new spot about 3·5 cm. in diameter at the right side of the nose. After four injections amounting to 2·75 g. all spots were smoothly cicatrised on July 27th. The last patch at the right side of the nose was still somewhat infiltrated but cicatrised and bluish-white. On Nov. 7th, 1935, the patient returned with two new spots about 2·5 cm. in diameter, one on each cheek. After four injections, totalling 2·75 g., given between Nov. 7th and 27th, both spots were smoothly healed on Nov. 30th.

CASE 3.—Female, aged 32, had been operated on at the beginning of 1934 for carcinoma of the ascending colon; since that time she had had facial lupus erythematosus, which spread in spite of treatment with ointments. On July 1st, 1935, there were, on both cheeks and nose, four patches 2–5 cm. in diameter, red, infiltrated, partly keratotic, and covered with scales. There were two smaller spots on the breast. After five injections of Bayer 205 between July 4th and 31st, amounting to 2·25 g., all spots were somewhat atrophically healed on August 5th, still showing some scaling at the tip of the nose. On Oct. 20th two new patches, about 3 cm. in diameter, appeared on the forehead and nose. Between Oct. 20th and Nov. 8th three injections were given, totalling 1·7 g. On Jan. 4th, 1936, all spots were healed, with smooth white scars on the nose.

CASE 4.—Female, aged 23, had had lupus erythematosus of the face and neck for about a year. She had been treated with ointments and unspecified injections (? gold). On Feb. 12th, 1936, there were on both cheeks and at the right nostril four patches from the size of a bean to that of an almond, deep red, infiltrated, partly keratotic, and covered with small white scales. Between Feb. 13th and March 18th she was given six injections of Bayer 205, totalling 3 g. On March 31st all spots had healed with slight smooth cicatrisation, some redness and infiltration appearing at the nostril only. On April 25th, infiltration of these spots was severer, with scale formation. Three more injections were given between April 25th and May 9th. On May 28th the spot at the nostril was pale and still somewhat scaly, but it healed after two more weeks of treatment with ointment. On Oct. 2nd, 1936, there was no change.

CASE 5.—Female, aged 30, had had lupus erythematosus for about 5 years and had been treated with ointments, gold injections, and solid carbon dioxide. As a child of 8–10 years she had had "pulmonary disease," but she had been healthy since then. On March 31st, 1936, there were two small white scars about 3–4 cm. in diameter on the right cheek and left parietal bone, and several patches 2–5 cm. in diameter, red, infiltrated, slightly scaling, and partly hyperkeratotic, on the chin, right side of the nose, and left cheek. Between April 2nd and May 3rd the patient was given six injections of Bayer 205 from 0·25–0·75 g., totalling 3·25 g. On May 15th all patches were healed except one on the left cheek which was still slightly reddened and somewhat scaling. On May 15th and 23rd two more injections of 0·75 g. each were given. At the control examination on August 17th no new eruptions were found; all were healed, partly with smooth white scars.

CASE 6.—Female, aged 28, had had lupus erythematosus for 2 years and had been treated with ointments, solid carbon dioxide, gold injections (badly borne), and finally with radium irradiation. On May 30th, 1936, both sides of nose and cheeks had several confluent patches, which were red, infiltrated, partly keratotic, and covered with white scales. On the right cheek and over the right parietal bone were several sunken bluish-white scars of the size of a bean. On May 31st the patient was given an injection of Bayer 205, 0·25 g., and on June 4th 0·5 g. (menses). On June 8th the infiltration was smaller, and the scaling of the spots more severe. On June 9th the patient had nausea, pains in the lower abdomen, a temperature of 102° F., glands of the neck swollen, traces of albumin in the urine, and a severe scarlatiniform exanthem. Sodium thiosulphate 1 g. was given intravenously. On June 10th and 11th the temperature was normal. On June 11th and 12th sodium thiosulphate 1 g. was given intravenously each day. On June 16th the temperature was normal and the exanthem less and scaling. On June 18th the skin was still slightly scaling, everything else being normal and the patches of lupus erythematosus smaller and paler. Between July 2nd and 21st seven injections of Bayer 205, 0·25 g. each, were borne well. The old patches had healed but new small patches had appeared. Treatment with ointments and bismuth injections produced slight improvement but no cure. After thirty-one bismuth injections, on Feb. 4th, 1937, all spots had healed with slight white cicatrisation, but there were still fine small scales at the edge of the scars. During another 10 days plasmoquine (50 tablets) was given. On March 24th there were two small patches at the right eyelid and at the root of the nose. Between March 31st and May 14th five injections of Bayer 205 (totalling 2·25 g.) were given. The spot at the right eyelid was still visible and somewhat red and scaling. On Sept. 1st there was a slight recurrence which completely healed after five injections of Bayer 205 (totalling 2·75 g.). On June 8th, 1938, there was at each side of the root of the nose a red scaling infiltration the size of a bean, which, save for some slight traces, disappeared on June 30th after four more injections (totalling 2 g.).

CASE 7.—Female, aged 38, had had lupus erythematosus 8 years and had been treated in Vienna 3 years ago with gold injections and Finsen light with good results. The last 2 years she had lived in Palestine, and new spots had appeared, especially in summer under the influence of the sunlight. Since then she had been treated again with gold injections, solid carbon dioxide, and ointments without lasting effect. On July 28th, 1936, her left cheek bore a patch about 6 cm. in diameter, with irregular boundaries, spreading on to the nose, composed of several small confluent foci, covered with scales, slightly reddened at the edges, partly hyperkeratotic, and with a central small smooth white scar. On the left temple was a smaller spot about 1·5 cm. in diameter, slightly red and scaling. Between August 29th and Oct. 17th the patient was given eight injections amounting to 3·7 g. On Oct. 29th the infiltration, except for slight traces, had disappeared, leaving some scale formation and redness at the edges. The treatment was interrupted by a journey abroad. The patient returned on Jan. 4th, 1937. The edges of the old spots were more strongly infiltrated, the scale formation was stronger, and the centre was white and scarred. The patient was given four injections, amounting to 2·25 g., between Jan. 5th and Feb. 4th. On Feb. 20th the marginal infiltration was only small, but there was still slight scale formation at the edges. The condition remained the same on April 25th, 1937.

CASE 8.—Female, aged 19, had had lupus erythematosus about 9 months and had been treated with ointments alone. On Nov. 15th, 1936, there were five spots from the size of a pea to 2·5 cm. in diameter, partly red and slightly scaling on both cheeks and the inner side of one auricle. Between Sept. 16th and Oct. 28th the patient had five injections amounting to 2·35 g.; all the patches completely healed. On Nov. 4th only the spot on the ear was still slightly infiltrated and scaling. On Feb. 16th, 1937, the condition was the same and was being treated with ointments.

CASE 9.—Male, aged 29, had had lupus erythematosus 6 months, spreading gradually. On April 7th, 1937, there were on right cheek and left side of chin two patches about 3 cm. in diameter and several

patches about the size of a pea, slightly infiltrated and scaling. After six injections of Bayer 205 between April 9th and May 10th all the spots healed by May 16th. On August 25th the two large patches recurred. Between then and Sept. 15th the patient was given six injections, totalling 3·5 g., after which the patch on the right cheek healed, leaving a white scar and still slight redness, infiltration, and scaling at the chin, for which ointment was prescribed. The condition remained the same on Nov. 2nd, 1937.

CASE 10.—Male, aged 21, had had lupus erythematosus 3 years and had been treated till now with ointments and unspecified injections. On July 15th, 1937, he was anæmic and had on the right cheek a patch about 3·5 cm. in diameter, infiltrated in the centre with thin scurf and covered at the edges with white scales. There were smaller spots of similar appearance but without scurf on the left cheek, right eyebrow, and right auricle. Between July 16th and August 14th the patient was given five injections amounting to 2·45 g. After the last injection of 0·6 g. he had giddiness, nausea, and slight headaches, lasting a few days. The urine contained traces of albumin. After 4 days all by-effects disappeared. By August 18th everything had completely healed except a small bluish-red infiltration of the right cheek. On Nov. 7th, 1937, there was still a slight infiltration of the right cheek without scaling. Extraneous reasons prevented further injections.

CASE 11.—Female, aged 39, had had lupus erythematosus 15 years and had temporarily improved under treatment with gold injections and solid carbon dioxide. On August 2nd, 1937, there were on both sides of the nose two patches about 3 cm. in diameter, red, infiltrated, and scaling. On the face and head were several white centrally retracted scars. Between August 12th and Sept. 19th the patient was given eight injections amounting to 5·15 g. On Sept. 29th the patches were smooth, without scales or infiltration, and slightly reddened. The condition was treated with ointment. On Oct. 12th, 1937, everything had completely healed.

CASE 12.—Female, aged 37, had had lupus erythematosus 3 years and had received unspecified injections and irradiation. The condition was always worse in summer. On April 2nd, 1938, there was on the right side of the nose a scaling, lightly reddened and infiltrated spot about as large as an almond. There were several smooth white scars on both cheeks. After five injections of Bayer 205, amounting to 2·7 g., between April 3rd and May 15th, the spot healed with a flat white scar. The condition remained the same on June 25th, 1938.

CASE 13.—Female, aged 27, had had lupus erythematosus about 5 years and had been treated with gold and other injections. On Jan. 28th, 1937, there were several smooth scars on the face, a deeper one at the left corner of the eye, and a small red spot the size of a bean on the right cheek. On March 28th these had healed under treatment with ointment, except for a small infiltration. On Jan. 22nd, 1938, there were two red and scaling infiltrations the size of an almond on the right cheek. The patient being under treatment for affections of the liver and stomach, ointment alone was prescribed and was followed by improvement. On April 17th the two patches on the right cheek were considerably larger, and two new ones about the size of a bean had appeared on the right side of the neck and shoulder. Between April 18th and June 4th the patient was given ten injections, beginning with 0·25 g. and amounting to 5·75 g. On June 20th, 1938, all had completely healed, except for bluish-white scars on the cheek, slightly covered with scales, being the remains of the spots which had appeared last. The injections were given at longer intervals and were borne well in spite of the chronic gastric condition.

DISCUSSION

The 13 patients treated by me were mostly old cases, only 2 of them having a history of less than one year, 5 between one and three years, and 4 between three and five years; in 1 patient the duration of the illness was eight years and in another fifteen.

To test the effect of the preparation on lupus erythematosus, every other treatment was set aside during the Bayer 205 treatment. In a few cases a mild ichthyol-resorcin paste was used to relieve the itching which sometimes occurred at the site of injection, particularly after the first. A cure was obtained in 9 out of the 13 cases, and a considerable improvement in 4. Until now I have observed no failure in the treatment with Bayer 205. Mild cases with only a short history, especially those with slight keratosis, are influenced more easily and more quickly. Recurrences after the first Bayer 205 treatment were observed in 6 cases but were always favourably influenced by further injections and mostly cured. I observed 4 cases for more than a year, including 1 for two and a quarter years; in only 2 of these cases could I diagnose a recurrence within the period of observation.

These observations and similar ones communicated to me by other workers, including Urbach of the University Skin Clinic at Vienna, show that Bayer 205 has stood the test well in the treatment of lupus erythematosus. Whether it is superior to the gold preparations and whether it is less harmful than them, as my observations apparently indicate, can only be determined by further trials with more numerous patients. Quicker results will undoubtedly be obtained by a combination of Bayer 205 with Finsen irradiation and solid carbon dioxide. At any rate, Bayer 205 seems to be a valuable therapeutic agent in the treatment of lupus erythematosus.

SUMMARY

Of 13 patients with lupus erythematosus, mostly of long standing, 9 were cured and 4 considerably improved by intravenous injections of a 10 per cent. solution of Bayer 205.

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TRICHLORETHANOL ON TRIAL

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SOME nine years ago a basal narcotic designed for administration by rectal injection was submitted by the manufacturers to the joint anæsthetics committee of the Medical Research Council and the Royal Society of Medicine for clinical trial before it was advertised or sold in this country. This new substance was Avertin (tribromethanol). It was tested for the committee by a number of anæsthetists whose favourable findings were published in a paper by Dr. Joseph Blomfield and Sir Francis Shipway in 1929. The popularity and usefulness of the preparation so introduced need not be stressed.

Since that time the therapeutic trials committee of the Medical Research Council has come into existence and through that body the anæsthetics committee has again been undertaking a clinical

trial of a very similar basal narcotic submitted to them by Messrs. May and Baker Ltd., on behalf of Messrs. Merck and Co. of New Jersey. Adequate supplies were given to us for trial and the following remarks embody our conclusions. It will be noticed that the number of cases in which it was employed (18) was not large, but the reason for this will be evident. The drug under investigation was trichlorethanol or trichlorethyl alcohol and the method of administration was injection into the rectum in a manner strictly comparable to that used with avertin.

Chemical composition and properties.—Trichlorethanol or trichlorethyl alcohol has the chemical formula $CCl_3.CH_2OH$ and is thus the same compound as solid avertin with the bromine atoms of the molecule substituted by chlorine. Trichlorethanol is a clear, colourless, oily liquid with a specific gravity of 1·55 and a boiling-point of 151° C. It is practically odourless, non-inflammable, and is soluble in water to the extent of 3·5 per cent. Both the pure drug and its solution are stable and do not tend to deteriorate on keeping, so that the addition of an indicator is unnecessary.

EXPERIMENTAL WORK ON ANIMALS

The effects of trichlorethanol on animals have been studied by Molitor and Robinson (1938), who administered the drug orally to mice and rats and rectally to rabbits and dogs.

Hypnotic effect and toxicity.—It was concluded that the hypnotic effect was slightly greater than that of tribromethanol in amylene hydrate (avertin fluid) while the general toxicity was slightly less.

Effects on respiration and circulation.—Trichlorethanol was found to depress respiration, but to a less extent than tribromethanol. The effect on blood pressure was much the same for the two drugs. Intravenous injection of trichlorethanol caused the transient appearance of extrasystoles, a phenomenon not observed with the older drug. On the other hand, death from overdosage always resulted from respiratory and not from circulatory failure.

Effects on liver and other organs.—Repeated administration of trichlorethanol failed to produce measurable impairment of liver function and no gross or microscopic changes were observed in the heart, kidney, spleen, or stomach. Irritating effects on the gastric and rectal mucosa were very slight and of the same order as observed with tribomethanol.

ADMINISTRATION IN THE HUMAN SUBJECT

In view of the favourable reports from the experimental work on animals, it was thought justifiable to begin tentative administrations in man using at first minimal quantities of the drug.

Dosage.—The measured dose of trichlorethanol was dissolved in forty times its volume of distilled water. It is convenient to measure the drug by volume (0·1 gramme = 0·0645 c.cm.) and this was done by means of a table based on body-weights in the same way as for avertin. The dose suggested by the makers was 0·08 to 0·1 g. per kg. of body-weight, and this was used as a basis for calculation.

Method of administration.—The rectal route was used in every case, the fluid being run in slowly at body temperature. Two advantages over avertin at once became apparent: (1) the greater ease with which the solution could be prepared and kept; (2) the smaller volume of fluid injected, with consequent greater ease of retention. No irritation of the rectal mucous membrane was observed.

Narcotic effect.—The effects of trichlorethanol on the human subject are much more variable than those of avertin. It became evident that doses below 0·1 gramme per kilogramme body-weight were useless if complete basal narcosis was essential, and one patient was not quite asleep with 0·12 gramme per kilogramme. Excitement was frequently seen before narcosis supervened and again during recovery.

Effect on respiration and circulation.—On the average there was less respiratory depression after trichlorethanol than after avertin.

There was a distinct tendency to tachycardia, particularly if the patient had passed through a definite period of excitement. One patient suffering from a very severely toxic goitre died an hour after operation, exhibiting extreme restlessness and tachycardia. It is not, of course, suggested that trichlorethanol was responsible for this thyroid crisis. The gravest suspicion must, however, be attached to the cardiac effects of the drug during induction of narcosis.

An elderly nervous woman suffering from a secondary toxic goitre was seen the day before a proposed partial thyroidectomy. She had a slow but completely irregular pulse indicating auricular fibrillation, but the cardiac compensation was good. This patient was typical of a suitable recipient for avertin and was given 0·1 g. per kg. of trichlorethanol. Her weight was 9 st. 6 lb., so that 3·9 c.cm. of the drug was diluted up to 156 c.cm. with distilled water. The patient was just beginning to become drowsy when she suddenly collapsed (actually while she was speaking), and her pulse became impalpable. The fluid remaining in the rectum was immediately siphoned off, measured, and found to be 66 c.cm. All efforts at resuscitation failed, and the conclusion could only be drawn that the patient died from primary cardiac failure. This finding was confirmed by the pathologist who made the post-mortem examination.

It is obvious that overdosage and respiratory obstruction can both be eliminated from the possible causes of death. It appears that trichlorethanol may, like chloroform, cause death from ventricular fibrillation or possibly from vagal inhibition of the heart. This patient was already suffering from auricular fibrillation and it is possible that ventricular fibrillation was thus more easily initiated. On the other hand, it is in just such patients that the beneficial effects of a basal narcotic such as avertin are so valuable. It may perhaps be significant that the molecules of both chloroform and trichlorethanol contain three chlorine atoms.

It is of course possible that the trichlorethanol has been unjustly blamed for this fatality. One of us has seen a patient in a very similar condition die in exactly the same way after her neck had been infiltrated with Novocain-adrenaline while she was resting quietly. The only premedication in this case had been morphine gr. ¼ and scopolamine gr. 100.

After this case (the eighteenth administration) we felt that it was unjustifiable to continue the use of trichlorethanol, and the inquiry was abandoned. This decision was endorsed by the anæsthetics committee at a subsequent meeting.

This view is in consonance with work done in America and published by Wood (1938). In a paper read at the Annual Congress of Anæsthetists at Chicago in October, 1937, this observer reported the death of an apparently robust man of 24 during an encephalography under trichlorethanol. Cardiac failure was preceded by extrasystoles. The American investigation terminated with this fatality which happened during the twenty-fifth administration.

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CLINICAL AND LABORATORY NOTES

STAPHYLOCOCCAL EMPYEMA IN AN INFANT

WITH RECOVERY

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A MALE infant, aged three weeks, was admitted to St. Thomas's Hospital on March 24th, 1938, with a history of cough. He was a first child, born at term after an easy and fairly rapid labour, and there was no difficulty in getting him to breathe. His birth weight was 6 lb. 8 oz. Lactation was established normally. When he was five days old his mother noticed that, after being fed, he vomited, and was allowed to lie in the vomit for nearly two hours. From that day the baby began to cough and to suffer from dyspnœa, especially during feeds, with the result that, although he seemed hungry, his mother had trouble in feeding him, owing to respiratory embarrassment. The day before admission he coughed up a little blood-stained sputum.

On admission the temperature was 99° F., the pulse-rate 146, and the respiration-rate 56. The infant was small and poorly nourished, weighing 6 lb. 1¼ oz. His skin was greyish. His breathing was laboured, with the alæ nasi working. His throat and ears showed no abnormality.

The intercostal spaces were poorly marked on the left side, which side showed little movement on respiration. The apex-beat was difficult to define, being apparently behind the sternum. On percussion the left side of the chest was stony dull, except for a small area of tympanitic resonance at the left base posteriorly (probably stomach resonance). Breath-sounds were absent over the whole of the left side and vocal resonance was much diminished. A few râles were heard on the right side. The spleen was not palpable and no other abnormalities were detected. Radiography showed a uniform opacity of the whole of the left side of the chest, the heart being displaced to the right.

On the same day 28 c.cm. of thick yellow pus was aspirated from the left side of the chest. Culture of this pus revealed a pure growth of *Staphylococcus aureus*. On March 25th 15 c.cm. of similar pus was aspirated. A blood count showed 3,368,000 red cells per c.mm. and hæmoglobin 60 per cent. Culture of the sputum gave a pure growth of *Staph. aureus*. This organism was also isolated from a blood culture. After this second aspiration the child showed slight improvement.

On April 2nd a fluctuant subcutaneous swelling developed in the left axillary region. This was incised and some thick pus evacuated. The wound discharged freely for some days and then healed, with steady constitutional improvement. He was also given a small blood transfusion on this day. From then on he slowly improved, his convalescence being only interrupted by a small septic lesion of the lower lip and a cold, complicated by a catarrhal otitis media, both of which responded to local treatment.

This case presents several points of interest. Empyema of the new-born, the neonatal period being taken to cover the first three weeks of life, is uncommon. A search through the literature has revealed only some 10 cases described in detail: of these 4 patients recovered. The methods of treatment used in the infants who recovered were as follows: one child was treated by intercostal incision; one was treated by continuous siphon drainage; and two were treated by repeated aspirations. None of the recorded instances was complicated by the development of empyema necessitatis.

The cause of these cases is not always clear. Some follow septic lesions elsewhere, and others, streptococcal in origin, are held to complicate puerperal infection in the mother. In the present case no obvious cause could be found, but a suggestion might be made from the history given by the infant's mother, that he inhaled some of the vomited material in which he was allowed to lie, with a resulting lung infection followed by empyema.

I am indebted to Dr. R. C. Jewesbury for permission to record this case.

TANNIC ACID JELLY IN THE TREATMENT OF INFANTILE STOMATITIS

By I. Mirvish, M.B. Capetown, M.R.C.P.E.

SORE mouth or stomatitis in the first two years of life is responsible for much discomfort and suffering, and the multiplicity of suggested treatments is a sign of our helplessness in the absence of specific treatment. Closely related to uncertain treatment is the confusion in the terminology of this syndrome, which has been variously known as infectious stomatitis, aphthous stomatitis, Vincent's stomatitis, ulcerative stomatitis, and trench mouth. According to Box (1930) there are over thirty synonyms.

By infantile stomatitis I mean those non-specific infections of the mouth in infants up to the completion of the first dentition, whereas specific stomatitis includes such conditions as scurvy, thrush, agranulocytosis, diphtheria, leukæmia, and gonorrhœa.

The lesions may vary in severity from a few small aphthæ on the tongue, cheek, or lips, associated with a little irritability and anorexia, to the full-blown picture of what Black (1938) calls "acute infectious gingivostomatitis," characterised by intense inflammation of the gums, oral fetor, fever, and acute swelling of the regional lymphatic glands.

The well-known astringent action of tannic acid prompted me to try a tannic acid jelly,* as used for burns, in the treatment of infantile stomatitis. "Applied to a raw surface or to mucous membranes, tannic acid precipitates the superficial proteins and forms a protective coating for the tissues beneath. On mucous membranes it also reduces mucous secretions and exudations from the superficial cells. Its albuminous precipitates resist micro-organismal growth" (Dilling 1933). There is a good theoretical basis, therefore, for the local use of tannic acid in stomatitis, and in practice the results have been most encouraging.

The mother is instructed to scrub her hands thoroughly with soap and water and then to apply a little of the jelly to the child's gums and cheeks with her finger. The average mother finds no difficulty in the application, and the soothing effect on a fretful baby is rapid and gratifying. Applications at two- or three-hourly intervals are recommended, but more frequent applications are quite safe. General treatment, in addition to local therapy, is very important but not within the scope of this note.

* A well-known proprietary tannic acid jelly was used.

CONCLUSION

Tannic acid jelly is suggested as a treatment for infantile stomatitis. It is safe, cheap, easy to use, and of great value combined with general treatment. My experience is that children of two and under seem to respond better than older children. I have had no experience with this treatment in adults.

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MEDICAL SOCIETIES

MEDICO-LEGAL SOCIETY AND ROYAL SOCIETY OF MEDICINE

AT a joint meeting of the Medico-Legal Society and the section of psychiatry of the Royal Society of Medicine, held on Nov. 24th, with Judge EARENGEY in the chair, Dr. R. D. GILLESPIE opened a discussion on the

Psychiatrist's Place in the Criminal Law

The place of psychiatry in criminology, he said, was very large, but the position of the psychiatrist in the administration of the criminal law was too little and, usually, too late. The chief contribution which psychiatry had to offer to criminology in general was a point of view rather than, as yet, a promise of results. Abnormal personalities were so diverse and their destinies so infinitely varied that no hard and fast rules were possible. Criminality was only one possible quality of diverse kinds of behaviour of these personalities. The fundamental principle of psychiatry was the biological concept of the human being as an organism in a social environment whose behaviour was the resultant of forces which were inherited and historical as well as immediate and contemporary. The historical aspect was the more particular subject matter of psychiatry; the immediate factors were the subject matter of the law. It was often said that the psychiatrist was too much interested in the individual and not enough in society and that the law must see that his humanitarian zeal did not overshadow his concern for the community, or even his common sense. But in so far as he forgot society he ceased to be a psychiatrist; society was one of the biological constants with which he had to calculate, and he had to take account of this factor from a much earlier time than was considered necessary by criminologists. Punishment was part of the psychiatrist's therapeutic equipment, but it must, to his mind, fit the criminal rather than the crime; a different conclusion from the judicial point of view. He was apt to regard the court as a fact-finding commission whose scope of reference was too limited and whose recommendations as to treatment were as likely to suffer in consequence as would the prescriptions of a doctor who was forbidden any knowledge of his patient's constitution.

It was difficult to find a statistical study of the results of the operation of the criminal laws. No one knew how useful or otherwise a particular kind or degree of punishment for a particular crime really was. There was urgent need for scientific research on this point. The law was highly empirical. Society had a right to ask its lawyers: if we allow you the bodies and souls of so many citizens per annum, what results can you promise for the ultimate protection of society and the ultimate welfare of its individual miscreants?

The proper place for the most experienced judges was not the quiet haven of the Court of Appeal, but the court of first instance, which much resembled a psychiatric out-patient department. The court, however, lacked an adequate history and the aid of those adjuvants to diagnosis which were available to the psychiatrist. A perfect system could not evade the responsibility of examining psychiatrically all offenders between conviction and sentence. The report could be brief and simple and would be invaluable to the magistrate. The life-histories of prisoners closely resembled those of psychiatric patients. He wished that more legal facilities could be made available to psychiatrists to help in the solution of these problems which could only be dealt with properly by joint action. It was necessary to educate the judicature and to give lawyers some routine instruction in the principles of psychiatry.

The psychiatrist at present only had an occasional function in the prison service. Nevertheless, even as the law stood, the scope of a prison medical officer's psychiatry could be enlarged by the investigation of cases whose sanity was not in question, by psychological treatment of the unstable, and by collaboration with after-care work. Psychiatric treatment included anything that could modify the character and behaviour of the patient. Psychiatry was the most sociological of all the medical sciences. In certain types of case psychotherapy would prove to be the only method that could claim specificity. It was no credit to the law and no good to psychiatry that the psychiatrist was invoked too often in capital charges and too seldom in lesser crimes. The McNaghten rules were theoretically fantastic and practically unacceptable. Nevertheless it was the duty of the psychiatrist to interpret them literally as long as they remained in force, and not to strain his conscience trying to mould this abstract and unreal formula to actual knowledge.

The law with regard to attempted suicide was honoured more in the breach than in the observance; a psychiatrist attached to the police-court would be useful in these cases. To a medical man there was something distasteful in seeing a drug addict before a court; the medical treatment would by no means be more lenient than that of the law. All sexual offenders ought to have psychiatric examination, and a proportion of them would prove amenable to psychological treatment. Many other offences might be the outcome of a psychopathic personality.

A LAWYER'S POINT OF VIEW

Mr. ROLAND BURROWS, K.C., suggested that the obvious place for the psychiatrist in the criminal law was in the dock. His place must be assistant and not dominant; the court was not and never had been the anteroom to a hospital and he hoped it never would be. The content of the criminal law was a matter for the State and not for the lawyer or the doctor. Administration excluded any amendment of the law. The object of criminal procedure was to ascertain whether the prisoner was guilty or not, and to make the offender understand that breaches of the standard were not allowed. The object of medical treatment was the prevention and cure of

some bodily ailment. The offender was liable so long as he was responsible. The McNaghten rules were wise and proper rules for criminal proceedings; they would stand criticism for many years to come. A man might need medical treatment without ceasing to be amenable to the criminal law; that type of person should not be removed from the charge of the law. The public were suspicious of medical men in this connexion because they produced a definition of insanity which would prevent anyone from being classed as really sane, and so nullified the criminal law. There should be medical treatment, but there could not be punishment, for cases of suspicion. A doctor must act on *ex parte* statements and hearsay evidence without proof. The medical man made a very bad justice; he was quite incapable of weighing evidence, and regarded the rules of evidence as a hindrance. The evidence of the medical witness in helping the court to come to a right conclusion and to assess punishment was valuable. The percentage of non-repeats was almost identical for every form of punishment. The great majority of offenders were not insane in any sense of the word; they were just "you and me and a little bit of ill luck." After sentence the psychiatrist might be useful if a probation order were made conditional on treatment. The dominant wish of most offenders was to be left alone, and the vis medicatrix naturæ might be allowed to work under supervision as at present provided.

OTHER MEDICAL VIEWS

Dr. DENIS CARROLL contributed a paper (read by Dr. Baldie). He said that abnormal behaviour might be due in mentally normal people to intercurrent stimuli such as puberty. Character anomalies and neuroses were produced by similar causes, and a crime might be a symptom. There was need for research into the underlying causes of crime. It would be better if offenders underwent examination after conviction rather than on remand. Many courts nowadays regarded the psychiatrist as a help in deciding what to do with the offender, especially the juvenile offender. The purpose of the psychiatric examination was to ascertain the patient's actual mental state, his history, and the relationship of these facts to the offence; and to apply this knowledge to suggest measures—medical, psychological, and sociological—for reform. The information might materially affect the magistrate's view as to the usefulness of punishment in the particular case. It was no part of the psychiatrist's function to determine guilt or to dictate what the court should do. He was an expert assisting the court to decide what line of treatment was most appropriate. The safeguarding and deterring of others were matters to which a competent psychiatrist gave very careful thought. He had the further function of carrying out such psychiatric treatment as the court might direct. A difficulty at present was that treatment could not be ordered for a case on probation. It was ludicrous to stop psychiatric treatment because it was not immediately successful; it was possible to punish for a second offence while arranging for treatment to continue. Success depended on individual factors, especially a positive attitude in the offender. Convalescent contact between doctor and patient should follow discharge from prison or treatment. It was not true to say that the psychiatrist regarded crime as a disease.

Dr. LETITIA FAIRFIELD said she represented the most important person in court: the man or woman in the public gallery, on whose behalf justice was administered. The true function of the psychiatrist in the interest of the British people was to assist the court in fixing responsibility and in the disposal of the convicted person. It was not primarily the duty of the court to inquire into the mental state of persons coming before it. To attack the McNaghten rules was like hitting a child; anyone who defended them showed ipso facto that he knew nothing of mental disease. They only continued in existence because no one paid any attention to them. Although the courts were so deplorable in theory with regard to mental disease, there was little room for criticism of their practice, except in some minor offences. She did not believe in a routine examination for every case; three good reasons were lack of experts, lack of time, and lack of money. A tendency to regard the psychiatrist as in charge of all crime made it easier for borderline cases to slip into crime and excuse themselves. Certain offences were correlated with mental abnormality in such high proportion that common sense and economy would dictate psychiatric investigation—e.g., arson, sexual offences, and the "poison-pen" type of case. It was for lawyers and the public to say to what extent the many minor mental abnormalities and perversions were to be regarded as mitigations of an offence. The psychiatrist could be of great use in helping to decide the disposal of the prisoner. The lawyer was only given his power because he was regarded as the most trustworthy guardian of the subject; he protected the prisoner from all the other people who wanted to get at him, aggrieved injured parties and psychiatrists alike! The work of the psychiatrist had suffered because too often he had been employed by the prisoner and not by the court. As regards diagnosis, the psychiatrist acting as the servant of the court had a very considerable advantage; he could give a really impartial opinion, and had a much better chance of seeing the normal individual. It was most desirable that lawyers should know something about psychiatry. A joint course of forensic medicine for medical and legal students would be a great advantage.

Dr. H. CRICHTON-MILLER said that psychiatrists never claimed a position of domination. As the official assessors or assistants to the magistrate they were far more useful than as advocates. No professional group would more heartily support the elimination of the medical expert witness. Humanity suffered from the myopia of magistrates as well as from bodily disease.

KENSINGTON MEDICAL SOCIETY

AT a meeting of this society held at St. Mary Abbots Hospital, London, on Nov. 23rd, with Mr. JAMES CARVER, vice-chairman, in the chair, a discussion on the medical arrangements for

Air-raid Precautions

was opened by Dr. W. A. HISLOP. Speaking as a general practitioner, he said, his impression during the recent crisis had been that for once the general practitioners and the general public of London had been in harmony: they were alike almost completely unprepared. He had realised that the population of London would, even before the outbreak of war, be reduced very considerably by evacuation. Was there, he asked, any place for the general practitioner in London in time of war? It would be neither practical nor efficient to expect him successfully to look after the remnants of his own practice and those

of all his colleagues who were on active service, and at the same time to carry out duties at aid posts, hospitals, and recruiting offices. General practitioners should be grouped into a civilian medical service, which should be organised in a skeleton form at once. Its members would be required to supplement medical officers in hospitals, do duty at aid posts and stretcher posts, undertake recruiting, take medical charge of the various civilian organisations working in London, and be responsible for all the private and panel practice that remained. It should be a paid whole-time service, and in war areas like London there should be no private practice. The profession should at once take steps to establish a scheme which would work efficiently in war-time.

Mr. CARVER dealt with air-raid precautions in a large hospital. By readjusting the wards and erecting extra beds it would be possible, he said, to increase the accommodation at St. Mary Abbots by 20 per cent. All windows had been measured for blacking-out, and window blinds of standard size had been cut. Theatre and dispensary windows had been covered with wire netting and boarded up. The inflammable spirit store, gas-cylinder store, gas meters, and boiler-houses had all been sandbagged. All wards had been provided with pails of sand and long-handled rakes. Shelters should be dug for staff. One block had been set aside as a decontamination centre. An engineer, an electrician, a carpenter, and a plumber must always be available, and the engineering and porter staff had therefore been divided into two shifts of twelve hours each with a key man in each shift. The porter staff had been divided into fire pickets and rescue parties. The nursing staff would have been augmented by the local branches of the British Red Cross and St. John Ambulance and from the school nursing service. The medical staff would have been augmented by personnel from the County Hall of the L.C.C., school medical officers, and locum tenents. Twice the normal month's supply of dressings, films, and anæsthetics had been laid in, with stores of every kind. To make room for the casualties, as many patients as possible were sent home, and the number of beds available on the last day of the crisis had been nearly half the normal accommodation of the hospital. A casualty-clearing station had been provided near the main gate. Arrangements had been made to give every casualty a numbered bag for his property. Simple case cards would have to be provided and made out in duplicate. The hospital had arranged with the medical officer of health that minor casualties should be referred to the aid posts. All the staff had had their bloods typed, and the pathologist had been asked to keep a supply of blood for daily use. The problem of accommodation could only be solved if all the hospitals and the ambulance service were under a unified control and the same authority had control of the admission to a large number of hospitals on the periphery. Each of the five regional areas suggested by the medical officer of health for London should have a panel of medical staff for allotment to hospitals in times of pressure. The number of aid posts should be increased, and there should be complete reciprocity between their personnel and that of the neighbouring hospitals.

Dr. J. N. DOBBIE said that, though he was attached to the Ministry of Health, he spoke purely in a private capacity. The Government, using the machinery of the British Medical Association, had made a register of all the doctors, with their particulars and proposed occupation in war-time. Its application would lie with the central emergency committee of the Association. The B.M.A. had represented to the Government how necessary it was to have a central committee dealing with the supply of medical staff, not only to the fighting services, but also to the civilian population. The committee was well advised by all sections of the profession and welcomed constructive criticism. Steps had been taken to coördinate and help all the hospital authorities. A complete survey had been made of all hospitals in the country at the beginning of the year. On June 1st the Ministry had taken over responsibility for organising a hospital scheme and had appointed a hospital officer for each of several regions, to estimate the potentialities of each hospital as part of a single scheme. They had arranged for the evacuation of hospitals in urban areas to hospitals in the periphery. As no one could predict where an attack would come, as many beds as possible had to be available in every part of the country. Voluntary hospitals had evacuated about half of their normal population; municipal hospitals not so many. During August and September the whole of the arrangements had been much accelerated. Every hospital had been given advice on emergency action. If war had broken out, 3000 or 4000 patients could have been evacuated from central London hospitals in twelve hours by means of motor coaches and ambulance trains, to hospitals 50 or 60 miles away, leaving the peripheral hospitals clear for casualties. It was quite impossible to detail each individual doctor to a specific job unless the authorities knew what job he would do. That would depend on the target chosen by the enemy. General practitioners should bear in mind that thousands of patients would be sent out of hospital needing medical supervision, and many more casualties would be walking or slightly wounded. During the first few days of war doctors would be busier than they had ever been in their lives. Hospitals in the most congested areas would be evacuated as far as possible, and the hospitals round London were being carefully examined to discover their capacity for casualties and the possibility of increasing their accommodation. Specialist units must be set up outside London. The authorities did not desire to interfere with the administration of any hospital authority or practitioner, but hoped to coördinate their efforts and relieve them of casualties. The Central Emergency Committee would soon be in touch with the local branches of the British Medical Association to help them to solve the problem of the individual practitioner.

Dr. M. B. HAY described the arrangements made by the Kensington health department. Much time had been spent before the crisis, he said, in training volunteers for the casualty services and establishing first-aid posts. During the crisis only a quarter of the volunteers had reported. He hoped that the whole organisation of casualty services would be taken over by the Ministry of Health. The Home Office policy for the aid posts could only be followed if the local authorities were paid for what they did. The first-aid posts could act as buffers to keep the great mass of minor casualties out of hospital. The Home Office demanded as a condition of grant that a first-aid post should provide separate accommodation for male and female patients, subdivided again into wounded, contaminated wounded, and contaminated unwounded. This requirement much restricted the choice of buildings, and excluded many well-protected buildings. The efficient staffing of a post needed 180 volunteers in three shifts, and the Home Office had stated that doctors should not be provided there. First-aid staffs and mobile parties must be prepared, in skeleton, day and night during war-time. Authorities could not rely on volunteers

for this work. Many wardens who had been sent instructions had taken the attitude that they were volunteers and demanded requests. The services could only be worked on a contract basis, which included a legal obligation similar to that resting on a member of the Territorial Forces. Instead of setting up ad-hoc first-aid posts, the casualty departments of hospitals should be extended, for they already possessed the proper organisation and the skilled staff, who could instruct volunteers.

DISCUSSION

Dr. HORACE NATHAN declared that all the practitioners in the country were ready to be used; they were waiting to be directed. They should be organised on a salary basis. There should be a doctor in every type of shelter, and coöperation between the medical and the ambulance professions should be improved. Psychiatric and obstetric services should be organised. Sodium bicarbonate and peroxide were probably valuable against mustard gas. Doctors should be issued with special respirators and should not have to take their places in the queue. Every borough should have a small emergency committee consisting of the medical officer of health, the chairman of the B.M.A. division, and the emergency officer, to point out to the central emergency committee the proper field of usefulness of each practitioner.

Dr. H. S. PASMORE pleaded for the evacuation of the leaders of the profession, who were concentrated in central London. He complained of the difficulty he had encountered in obtaining information during the crisis, and said that all doctors ought to have the information they had received that evening. Any scheme must offer the general practitioner a salaried job at once.

Mr. MCADAM ECCLES spoke of the efficient steel shelters he had seen in a German city in the early summer. Preparation was one of the best insurances against war, for it would avert the panic which was the chief object of raids. Special first-aid posts would be necessary in addition to casualty departments in many boroughs. It was nonsense for the British Red Cross Association and St. John Ambulance to object to the introduction of doctors. Medical men were essential at first-aid posts. Identification of the dead and dying was important; labels should be prepared for this purpose and also for attaching to patients to show what treatment had been given, especially injections of morphia. Maps of the borough, marked with the position of hospitals, posts, and shelters, should be available to the public.

Dr. W. A. LETHEM said that the disposal of the doctor in war-time had not been overlooked, but that he was not the only professional man who needed guidance. A scheme for indicating duties to the medical profession would perhaps be part of a much wider scheme.

Dr. ALEXANDER BALDIE pointed to the necessity of economising the man- and woman-power of the nation, which was not inexhaustible. One economy would be the use of extended casualty departments as aid posts. Evacuation of unwounded civilians should be cut down to the minimum consistent with military and psychological requirements: the persons evacuated should be selected as comparatively useless to the community. If the emergency were made the excuse for the clearance of large slum areas, and military considerations were confused with social reform, more harm might be done than good. Doctors would more willingly accept a compulsory scheme if the capital interest in their practices was safeguarded so that in the period of reconstruction after war they would have something to go back to. Doctors could help in several directions—e.g., as surgeons and in preventing panic. Psychological specialists should be used to ensure that persons in important and responsible positions should be protected from situations which they were psychologically unfitted to endure. The doctor's work at present included education and propaganda—matters on which no real conclusions had emanated from any Government department. He cordially supported the establishment of local medical committees to advise the officer responsible for A.R.P. arrangements. Such committees would find plenty of work to do for a long time to come.

Dr. EDITH REDDING asked how a doctor could carry on with his practice and also work eight-hour shifts at a first-aid post. The authorities would have, she said, to provide practitioners to accompany the large numbers of persons who were evacuated.

Dr. HAY, in reply, said that the Kensington posts were staffed with volunteers and with doctors, and would have worked, though not very well. The medical A.R.P. committee in Kensington was the executive committee of the B.M.A. division; it had made some valuable suggestions upon which the health department had already acted. The eight-hour shift would be an emergency which over-rode the obligations of practice. A doctor on his rounds who received warning of an air raid would report to the nearest post and at once communicate with his own post.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION

AT a meeting of the clinical psychiatry subcommittee of this association, held in London on Nov. 23rd, with Dr. M. A. COLLINS in the chair, a paper dealing with the

Minor Psychiatric Sequels of Head Injury

was read by Dr. S. A. MACKEITH. Although, he said, head injuries were recognised as a cause of mental disorder, it was not well known how often they produced such disorder. Study of official figures concerning casualties in the war of 1914–18 had led both British and foreign observers to dismiss as insignificant the influence of trauma in the production of psychoses and psychoneuroses; but Mapother doubted the validity of this conclusion.

Dr. MacKeith excluded from his paper the direct post-traumatic deliria, the traumatic defect conditions (such as secondary deterioration in connexion with epilepsy), and frank psychoses necessitating certification. He confined himself to the minor post-traumatic psychiatric syndromes. He gave a list of these, ranging from the "fright neurosis" described by Kraepelin to the condition known as "traumatic encephalopathy." The latter was, he said, the commonest of the various syndromes. Other, but less suitable, names for it were traumatic psychasthenia, post-traumatic dementia, and the post-concussion syndrome. The main symptoms were headache, dizziness, intolerance to intoxicants, and inordinate fatigue on effort. Often there were no neurological signs, but it was now generally agreed that the condition was of organic origin. A blow on any part of the head could produce it; the strength of the blow was not important. It was not necessary for the skull to have been fractured, nor

was retrograde amnesia or a history of unconsciousness essential. The symptoms were exacerbated by excitement, exertion, bending down, and weather changes; variability in their intensity was characteristic. Sometimes there was a "dazed feeling in the head" instead of actual headache.

The symptoms of traumatic encephalopathy were caused by a disturbance of intracranial equilibrium, probably due to a combination of factors. Perhaps the chief of these was a continuously irritable and efficient cerebral circulation. Such patients required a specially careful and complete neurological examination. This would reveal a few physical signs in most cases, but not in all. In doubtful cases use should be made of accurate tests of vestibular function and auditory acuity. The visual fields should be examined with great care, and notice taken of any complaints of unusual visual symptoms. Encephalography, spinal manometry, and biochemical examination of the cerebro-spinal fluid were also important. The psychiatric examination should be equally thorough in doubtful cases. The intellectual processes, the sensory experiences, and the volitional tendencies should be investigated. Typical symptoms included impairment of judgment, lack of earnest relation to reality, and loss of interest, initiative, and adaptive capacity. There should be an examination from the psychodynamic standpoint, which should *not* be limited to a hasty review of the compensation situation.

Widely differing pathological findings had been reported in cases of traumatic encephalopathy. Among the finer changes that had been described were diffuse pin-point hæmorrhages, alterations in the ganglion cells, necrosis of the walls of the smaller blood-vessels, glial proliferation, and ependymal and sub-ependymal lesions. Lesions of grosser type had been described by Grünthal in an interesting series of 17 cases, all partly or entirely mis-diagnosed during life. In 13 of his cases the frontal lobes were affected. Grünthal had stressed this, and had pointed out that in many of these patients there was no mental disturbance that would strike a non-psychiatrist.

There was no general agreement as yet about the prognosis of traumatic encephalopathy. Ability to work was in some cases never recovered. In this connexion, it was of importance whether the patient's job involved much mental work. In the treatment, rest was important. Various writers had reported relief of the headache by lumbar puncture, trephining, and encephalography. Prophylaxis was a more hopeful field. Greater use should be made in recent cases of head injury of conservative methods of reducing intracranial pressure, and such cases should have much longer periods of convalescence. The various post-traumatic syndromes could not be rigidly divided into physiogenic and psychogenic. There was a continuous "spectrum" ranging from hysteria, in which the trauma merely precipitated the reaction, to traumatic encephalopathy occurring in a patient without any history of psychoneurotic traits. Even a typical case of traumatic encephalopathy became complicated by psychological factors, if economic and social difficulties continued long enough. We should not think of this as a mere superimposition of psychogenic on organic disorder. We should regard each of the various post-traumatic syndromes as a total psychosomatic reaction to the environment.

Dr. W. MAYER-GROSS welcomed Dr. MacKeith's "scientific holistic psychiatry." Referring to the effect of compensation claims in these cases he mentioned that lesions of the frontal lobe, especially its lower part, produce a euphoria and lack of insight which sometimes leads the patient to attempt to start work again too soon.

Prof. F. GOLLA related how, with pensioners or candidates for pensions after the late war, there was perseveration which eventually passed beyond the patient's control. He emphasised that (in the absence of skeletal trauma) headache was always a manifestation of some pathological process in the dura mater, usually distension of the blood-vessels. The distinction between psychogenic and physiogenic was absurd.

Dr. S. L. LAST had studied cases of ordinary concussion treated in a casualty department and soon discharged. In all cases, in his experience, there had been some neurological signs at some time—e.g., nystagmus or transient oculomotor palsy—pointing to a transient focal lesion. In the psychological investigation it was important to test the fatigability.

Dr. R. STRÖM-OLSEN mentioned that Symonds had successfully treated persistent cerebral contusion in head injuries with hypotonic saline.

In reply, Dr. MACKEITH said that Dr. Last's remarks had reminded him that some of his patients had complained that the passage of motor-cars by their side in the street made them dizzy. This was not necessarily a psychoneurotic manifestation, because he had found that some of them had difficulty in lateral deviation of the eyes. Symonds's treatment, mentioned by Dr. Ström-Olsen, had previously been advocated by Trotter and was effective only in some of the cases.

Licensing of Mental Defectives

The mental deficiency committee met on the same day with Dr. F. DOUGLAS TURNER in the chair to discuss the possibilities and limitations of licensing patients from mental deficiency institutions and colonies.

Sir LAURENCE BROCK, chairman of the Board of Control, said that the meeting had been called at his suggestion because of criticism of Circular 850. He thought that there was a good deal of misapprehension about the Board's views and motives, and he had come to explain them. The periodic review of patients on licence was a political necessity. In 1938 it had been discovered that there was a technical flaw in the continuation order of a mentally deficient patient out on licence, and this incident had focused attention on licensing in general. The patient in question had been out on licence for about ten years, during which time he had earned a good wage, had given no trouble, and had committed no antisocial act. Nevertheless he was a high-grade mentally deficient person. To the lay mind this state of affairs was rather shocking. Another patient out on licence had been visited on an average only once a year by the body to whom the duty of visiting had been delegated. It was impossible to say that he was receiving "care, supervision, and control" in the words of the Act. The layman could understand that a mentally deficient person should be segregated in an institution in which he might be trained to live a normal life and then be sent out into the world on trial over a possibly protracted period, but he could not understand the necessity for indefinite licence. To satisfy the layman one would have to show clearly the necessity for continued care—e.g., in the case of a homeless girl. There were many cases in which it would be difficult to give the reasons for continued restriction. In fact indefinite licence

was indefensible unless it could be said that the cases were reviewed from time to time. It was not contemplated that after a number of years the patient on licence should automatically be discharged. Antisocial actions were more likely to recur in one type of deficiency than in another. Larceny might not be so likely to be repeated as sexual offences.

The CHAIRMAN was convinced that institutional care was not necessary for all mentally deficient persons, but many needed it and could be returned under licence; licence was the best way of returning them to the outer world. All institutions for mentally deficient persons started as schools for the purpose of returning them to the world. At Colchester they had been the first (in 1866) to send patients out on licence, but they had forgotten it until they started again to do so in 1919. They had sent their girls to local clothing factories, but that proved no good because the work was seasonal and during the off-periods the girls could not keep themselves. Domestic service also had its dangers. All posts taken by girls on licence should be near the hostel, so that the girls could spend their off time at the hostel. The girls handed their wages to the matron, who gave them pocket-money, bought their clothes, and opened a savings-bank account for them individually. At Colchester, of 31 girls in service all but 4 were within a bus ride of the hostel, and their average annual wages were £19 10*s*., the highest being £31 and the lowest £14. Of 50 boys on licence at their own homes the average weekly earnings were 31*s*. One man, after three years' licence, had £150 in the bank. There were two types of patient out on licence: those in jobs earning wages, and those at home or with foster parents. Very few came back to the institution for sexual offences. Only 4 girls had come back for pregnancy, and only 4 boys for sexual offences.

After the judgment in the Holgate case they had protected themselves at Colchester by insurance against both damage to the institution by a patient and damages for a patient against the institution. Another important question which arose was: What is a medical superintendent? Can a medical officer acting for the medical superintendent sign a licence for him? To get over this difficulty his committee had authorised all its medical officers for this purpose, but the legal position was not clear.

Just as much care was necessary over a licence for a couple of hours as over renewing a licence. He advocated at least monthly visits to patients out on licence. He thought that Circular 850 was "a come-back of the legal mind," which did not like the idea of licensing. He thought that the suggested period of two years was too short. It should be at least three years, and even that was probably too short. Very often a patient went wrong as soon as he knew he was discharged. For most patients permanent licence was the only alternative to institutional treatment. Guardianship was suitable for only a very small proportion of cases.

Dr. S. E. GILL agreed with Dr. Turner. Everything should be done to help the mentally deficient to return home, and every opportunity of licensing should be taken. The institution was for the purpose of training them to do so and of detaining those unsuitable for licence. He pleaded for the quiet non-vocal patient, who "stayed put," to be placed in family life. Types suitable for home life were the low-grade passive patients. The unsuitable were the active high-grade patients. If the patient committed a sexual offence while on licence, the date of review should be postponed. The guardianship society with which he was connected looked after about 900 patients, of whom over 750 had been certified as mentally deficient. Their activities included girl guides, carpentry, boot-repairing, embroidery, and a club for working boys. Many were earning, 1 in 7 being completely self-supporting.

Miss EVELYN FOX, secretary of the Central Association for Mental Welfare, said that the failures of licensing were attributable to the local authorities' lack of knowledge of the amount of work entailed. She gave a few statistics. In an area of fifty miles' radius containing 159 patients out on licence one officer made 756 visits in a year. Admittedly most of the girls could be visited at a weekly club, but 280 of them could not. The car-miles amounted to 10,700. Another set of statistics concerned 8 patients on licence in one year: one maid in a good situation had 4 visits, and 44 letters were sent and received; one patient had 8 visits, and there were 112 letters; another 8 visits and 48 letters; another 20 visits, 84 letters, and 84 telephone calls (evidently some sort of crisis); another 12 visits and 80 letters; another 12 visits and 108 letters; and so on. If it were not done on this scale the licensing system would fail.

The CHAIRMAN said that the visiting should be done preferably by local voluntary organisations rather than by officers of the institution.

Dr. R. STEWART asked whether a discharged mentally deficient person should be allowed to marry: if the patient were discharged, how could marriage be prevented? But mental deficiency was incurable.

Dr. ROSE pointed out that, if a patient were licensed to her mother, and the mother became ill and was admitted to hospital, the terms of the licence lapsed, even when the family was willing to keep and care for the child, and the medical officer was not allowed to vary the terms, although he could revoke the licence. Similarly, a girl getting a holiday on licence and having to change the dates unexpectedly could not have her licence varied to fit the new circumstances.

Dr. G. DE M. RUDOLF, a visitor under the Act, showed that, if a patient were discharged after two years of normal life and later lost his job through no fault of his, he might be unable to earn his living in a new job. He also pointed out that, whether mental deficiency were heritable or not, a mentally deficient person was an entirely unsuitable person to have the care of children.

Dr. N. H. M. BURKE supported Circular 850, saying that it was sensible and very valuable to review licences every two years (as good a period as any other); but it did not state clearly the procedure to be followed. What medical officer was to review the case? How was the local authority to express its opinion? Further, the time-limit given in the circular was impossible. He also emphasised the necessity for trained visitors, not merely the district nurse.

Dr. FITZGERALD urged legislation to prohibit the marriage of discharged mentally deficient persons.

Dr. C. J. C. EARL quarrelled with the legal definition, or lack of definition, of mental deficiency. The Act spoke of mental deficiency "within the meaning of the Act," but the Act had no meaning at all. If a patient had lived a normal social life, what evidence could there be on which recertification could take place? How could a person with arrested mental development suddenly become a person without

arrested mental development? There should be no such thing as discharge, but there could be a system of extended parole, something between licence and discharge.

Body-weight in Mental Disorder

At a meeting of the pathological, bacteriological, and biochemical subcommittee, Mr. D. R. DAVIES (County Mental Hospital, Glamorgan) described his observations on body-weight. The variation in weight of people suffering from mental disorder was, he said, much greater than in physically and mentally healthy people. The weight history of psychotic patients had been traced during the acute stages of mental illness, during chronic states, and on recovery. It was found that 70 per cent. of such patients are significantly underweight on admission and this is not a function of diet only, for control groups of patients who were resident in hospital for varying periods and were on adequate and balanced diets exhibited the same changes. The extent of body-weight changes in acute states was much greater and more rapid than those found in either normal people or chronic mental patients. Variations in weight in the acute conditions ran parallel to the patient's major clinical variations, and improvement in condition, leading to discharge, occurred in the majority of cases simultaneously with a gain in weight. Weight changes in the chronic state over short periods approximated more nearly to the normal. The growth of chronic psychotics (as shown by weight changes over long periods) was much retarded, however, and in more than two-thirds of the cases studied there was either a loss in weight as compared with weights on admission or a retarded weight development.

These facts suggested to Mr. Davies that in the majority of mental cases body-weight changes may be physical manifestations of mental illness. They should be studied because of their significance in clinical psychiatry and because of their importance as indicators of gross metabolic disturbance.

The Maudsley lecture, delivered on Nov. 24th by Prof. D. K. Henderson, receives notice in our annotation columns.

LIVERPOOL MEDICAL INSTITUTION

AT a meeting of this institution on Nov. 17th, with Dr. E. GILBERT BARK in the chair, Dr. ROBERT COOPE read a paper on

Pleural Effusions, including Empyema

He pointed out that the classical signs of effusion are apt to be misleading if used in rule of thumb fashion. In moderate effusions below the level of the hilum of the lung, displacement of the apex of the heart is due to relaxation and loss of elastic tension of the lung on the side of the effusion; in effect the fluid lessens the volume of the thoracic cage on that side, and the lung therefore is never fully expanded—far from it. The elastic lung on the sound side, like a piece of stretched elastic, pulls the heart apex over towards the sound side. In large effusions, in addition to the elastic pull of the sound lung, the actual weight of the fluid becomes an appreciable factor, and the whole mediastinum may be apparently pushed over; but even so, it is necessary after putting in an exploring needle to suck out the fluid; it does not spurt out under its own pressure like cerebro-spinal fluid. Absolute dullness of percussion note, felt even more unmistakably than heard, is the cardinal sign of all, but there must be sufficient fluid present to cause the lung to retract far enough away from the chest wall to ensure that the lung vibrations do not come through. This involves the accumulation of at least 400 c.cm. of fluid. Moreover, the percussion should be quite light, especially in marking out the upper level of the fluid. By reason of the way the lung retracts from the chest wall, the upper limit of the dullness is highest in the axilla, as is well seen in a radiogram.

Why are vocal fremitus and breath sounds usually absent over pleural effusions? It is not because fluid is a poor conductor of sound—it is an excellent one—but largely depends upon the loss of sound in passing through two different media instead of one. Also the ease with which sounds are transmitted through a medium such as the lung depends a good deal on its elastic tension. In the presence of a pleural effusion two factors tend to make a sound transmitted from the larynx and large bronchi more difficult to hear or feel on the chest wall—the lung is retracted and not so elastic as normally, and the sound has, as it were, to jump from air to water. In particular cases, however, if there is not much fluid and the lung is not greatly relaxed, the sound may jump the gap between lung and fluid, and once it gets into the fluid it will be well conducted. This often happens in children, and many an empyema in a child has been missed by letting the diagnosis wait upon absent breath sounds over an area of dullness. Again (but this is uncommon) underlying consolidation of the lung may conduct enough sound to the periphery of the lung for sounds to jump the gap and be conducted through the fluid to the chest wall, but these undoubted bronchial breath sounds are usually faint, as if heard from a distance. The condition of the lung underlying a pleural effusion, then, helps to determine the physical signs; it is unlikely, therefore, that any so-called idiopathic pleural effusion will present anything but absence of the usually conducted sounds, for ordinarily the lesion in the underlying lung consists of scattered tiny subpleural foci, rather than an actual massive consolidation. "The cardinal sign is the absolute flatness of the percussion note; if this is present, do not be turned aside from the diagnosis of underlying fluid because you may hear breath sounds or even bronchial breathing coming through. Who of us relies on such things as Grocco's and Garland's triangle and Traube's space, even as adjuvants to our diagnosis? They are unimportant and often misleading, and it would be more honest to consign them to the historical museum."

The overwhelming majority of clear effusions are tuberculous, and to accept that fact frankly is the beginning of right treatment. Even in pre-radiological days, Scandinavian workers found that if these patients were treated as ordinary hospital cases of acute illness, and discharged thereafter into the rough and tumble of the world, 40–50 per cent. of them became, a few years later, frank cases of pulmonary tuberculosis. With the coming of radiology the percentage has been found to be even higher. One of the most important pieces of evidence for the serious nature of these effusions is (by contrast) the favourable effect on the future of such patients of treating them strictly as tuberculous. These effusions are only symptomatic of pathological processes in the underlying lung; the fluid is essentially an incident in the wider disease. If by reason of its bulk it causes mechanical difficulties, relief must be given by drawing some of it off. But it is the disease behind the fluid which is of primary significance, and the important question is how to

deal with the diseased lung. A lung with scattered subpleural tubercles only is not one which calls for an artificial pneumothorax (which is what is really involved in the term "gas replacement"); but it is a lung eminently suitable for sanatorium treatment, akin to the "early case" which the physician prays to encounter. Moreover, the lung with an obvious tuberculous lesion (almost always in the upper part), revealed by radiography or a positive sputum, must be considered on its own merits apart from the fluid present. There should be no routine gas replacement even here; the first question to solve is whether that lung is suitable for an artificial pneumothorax or not.

Apart from any question of replacing the fluid by air, is it to be removed in any case? To do so may cause rapid re-expansion of the lung, a change from lymphatic stasis to flooding of the tissues with body fluid, and a real danger of dissemination of the lesions. It will usually be absorbed within four to six weeks if it is left alone, even though pyrexia may persist in some patients over this period. After the acute stage is over, these patients ought not to return to the stress and strain of everyday life. With adequate sanatorium régime and treatment, over 90 per cent. get back to work and remain well. This remarkable contrast with what happens if the illness is merely considered as an acute episode calls for courage on the part of the doctor to be frank with these patients, in telling them what they may expect.

Purulent effusions are of two types—true pyothorax and abscess of the pleural cavity (large or small), shut off by adhesions. It takes time for adhesions to form; in the earliest stages of either a pneumococcal or a streptococcal effusion the pus will be thin and adhesions will not yet have formed. The practical difference between pneumococcal and streptococcal empyema is that an effusion complicating a streptococcal infection of the lung forms early, and the pneumonia—usually a broncho-pneumonia—does not as a rule recover so quickly; so the streptococcal effusion tends to remain thin and cloudy for a much longer time than does the pneumococcal. The pneumococcal empyema is not usually diagnosed until the pneumonia is better, the pus thick, the empyema walled off, and the condition ripe for operation. Therefore "evacuate pus straightway by free incision" is altogether too hasty counsel in the streptococcal cases; on the other hand the over-cautious physician will tend to be too dilatory in the pneumococcal ones.

Pus must be removed, and the sooner it is removed the better for the patient both immediately and for the future; but it is important not to kill the patient in the process. Moreover, it must be done in such a way as to encourage the lung to expand, both for its own sake and to obliterate the abscess cavity. Although the absolute "mobile mediastinum" of theory is not usually present, it is mobile enough for an open pneumothorax to tip the scale against a patient whose vital capacity is seriously impaired either by pneumonia in the underlying lung or by toxæmia hitting severely the heart or the general condition. Some form of closed drainage is therefore the ideal, both during the acute stage of the lesion in the underlying lung and to favour later the proper expansion of the lung. But if the patient comes to the surgeon with large masses of fibrin and sloughs in the pleural cavity, then open operation may well be necessary, followed later by closed drainage. In purulent effusions, too, one must look to the condition in the underlying lung for guidance in right treatment. Pus in the pleura is not only due to acute infectious processes; there may be primarily a lung abscess, or a neoplasm, or phthisis, or even a subdiaphragmatic abscess. Empyema is not an emergency calling for immediate surgical interference; there is time to think and plan, even if one has to temporise by a preliminary aspiration of pus. But this is no excuse for dilatoriness in deciding (in consultation with the surgeon) what is the best plan to adopt for any particular patient.

DISCUSSION

Dr. RONALD ELLIS said he had been impressed by the variety of signs which might occur in empyema, especially when a previous exploratory puncture had been made. He had noted on more than one occasion definite amphoric breath sounds, a sign which one does not usually associate with pus. The other common cause of a missed diagnosis was failure to use a wide-bore exploring needle. If pus were not obtained at once, exploration should be performed on succeeding days, but bearing in mind that puncture of the lung itself is not without danger.

Dr. G. S. ERWIN said that the most recent English paper on the prognosis of pleural effusions appeared to have been published last century. There was still a tendency to aspirate pleural effusions without justification, and it was necessary to give such cases more prolonged sanatorium treatment to compensate for the loss of fluid. The treatment of tuberculous empyema needs clarifying, though the secondarily infected type with fever demands closed intercostal drainage combined with suction in selected cases. Thoracoplasty may be necessary, but the judicious use of suction may avert operation.

Dr. WALLACE JONES emphasised the importance of frequent tapping in those cases of pleural effusion where there was a likelihood of the fluid being infected, and described a rough method of estimating the degree of infection present.

Mr. JOHN T. MORRISON showed a drawing of his trocar and cannula for the introduction of a drainage-tube through an intercostal space. A surprising number of patients required no other drainage. The instrument, which is made by the Genito-Urinary Manufacturing Co., is designed to secure easy insertion of the drain and its accurate fixation in the chest, and to prevent the entrance of air into the chest during this manœuvre.

Mr. HUGH REID said that excluding tuberculous empyema, one of the main causes of chronic empyema was that drainage was not carried out for a sufficiently long time. The best method was by an intercostal tube inserted under local anæsthesia by the trocar and cannula method, and having either siphon or suction apparatus attached. Radiography was essential before removing the tube, to make certain that the lung had expanded. Even in long-standing cases of chronic empyema suction drainage of the chest was attended with surprisingly good results. Sometimes it was necessary to persist with drainage for months if thoracoplasty was to be avoided.

Mr. F. RONALD EDWARDS discussed the value of thoracoplasty in those cases of pleural effusion where the ætiology was not obvious. In the treatment of acute empyema by aspiration, it was a good idea, particularly in children, where repeated aspirations might have to be made, to make a tiny incision in the skin down to the intercostal muscles. The needle could be inserted through this opening quite painlessly.

REVIEWS AND NOTICES OF BOOKS

Everyday Surgery

By LAMBERT ROGERS, M.Sc., F.R.C.S., Professor of Surgery, University of Wales, at the Welsh National School of Medicine, Cardiff; and A. L. D'ABREU, M.B., Ch.M., F.R.C.S., Senior Assistant to the Surgical Unit at the School. London: Edward Arnold and Co. 1938. Pp. 280. 12*s.* 6*d.*

THIS small book is meant to present what the authors believe to be the best in modern surgical practice in everyday (as opposed to unusual) experience. Prof. G. Grey Turner contributes, in the guise of an introduction, a wise and comprehensive essay on principles which should be pondered by all who seek instruction from the book itself. His thesis, illustrated by apt example, is that routine practice should never be opportunist but requires a firm grasp and application of basic principles. To use hæmostatic sera instead of attempting to stop bleeding at its site, to relieve persistent post-operative pain by deadening it instead of seeking its cause are errors which he cites, among many others, to remind readers that adequate everyday surgery involves a broad conception of pathological processes. No one, as he says, can expect to learn the art of surgery from reading this unassuming little book, but many will find it useful as a guide in emergency or a remembrancer in times of stress. One can imagine an alert and diligent student in the surgical units of the Welsh National School of Medicine taking careful notes and finding at the end of his course that he need not have troubled to preserve them, for here, in convenient form, is printed the gist of the teaching on the commoner conditions. It is, of course, of more than local interest. Many of its chapter headings recall the titles of the more popular lecture-demonstrations at refresher courses—e.g., burns and scalds, injuries and infections of the hand, varices, anal fissure and fistula, hernia, gastric and duodenal ulcerations, fractures and dislocations, and so forth; the book will doubtless appeal especially to those who are unable to take advantage of such courses. There are many small mistakes which should be rectified in a future edition. For example, it is unfortunately not true that in hæmophilia the *injection* of snake venom is of proved value. Lisfranc's amputation is at the tarso-metatarsal, not at the metatarsophalangeal line. In the article on gastrectomy we are told on one page to preserve the pyloric antrum, and on the next to remove it for fear of persistent hyperchlorhydria. Humpty Dumpty himself could not have invented a more delightful—if misleading—portmanteau word than that which describes turbid and purulent peritoneal fluid as turbulent.

There is nothing academic or even systematic about this book. It omits much but distorts little; it contains a lot of good useful stuff and is easy and pleasant to read.

The Thinking Body

A Study of the Balancing Forces of Dynamic Man. By MABEL ELSWORTHY TODD, New York, N.Y. London: Constable and Co. 1938. Pp. 314. 22*s.* 6*d.*

THIS book is a refreshing addition to the accounts of the structure and posture of the body. Miss Todd is well known in America for her practical research in this subject, and her exposition of it is neither too academic nor too popular to be of interest to the practising doctor. She approaches skeletal structure from the architect's standpoint. After considering evolutionary development, she proceeds to explain the requirements of balance and weight-bearing in man by analysing the stresses and forces to which the body is adapted. As in any engineering scheme the material is chosen, the support arranged, and the balance between compression and tensile forces secured, so are the material and mechanics of the body contrived in every detail to withstand strain and to fulfil the laws of a dynamic structure. On the same basis joints and limbs and muscular action are suited for their functions. The erect position is discussed by Miss Todd in relation to the distribution and bearing of weight, and she shows that false or exaggerated posture of "drill" type is to be condemned simply because such posture does not fulfil the purpose of balanced weight-bearing. Walking and breathing are considered in relation to structure. Since the body must work as a whole, it is obvious that unsatisfactory action of one organ—faulty diaphragmatic action in breathing, for example—may have far-reaching maleffects. The final chapters on the proprioceptive system and the physiology of fatigue and emotion are full of practical references to daily life, and emphasis is laid on the belief that "structural unbalance reflects nervous unbalance." At a time when fatigue is commonly complained of and the teaching on posture is confused by many individual "systems" of rectification, a painstaking study of the purpose of the elements of structure which are combined to meet the requirements of man is particularly helpful. An understanding of natural laws is the logical path to the achievement and retention of a good natural posture.

Pseudo-Tuberculosis in Man

Part I: Besnier-Boeck's Disease; Visceral Localisation of the Sarcoids of Boeck. By Prof. I. SNAPPER and Dr. A. W. M. POMPEN. *Part II: Regional Ileitis.* By Prof. SNAPPER. Haarlem: De Erven F. Bohn N.V. 1938. Pp. 90. Hfl.7.50.

THE title of this book which embodies three lectures given by Prof. Snapper in London last year seems to us unfortunate. We have had pseudo-leukæmia, pseudo-hæmophilia, pseudo-paralysis, and pseudo-angina, and we are now asked to add to the list pseudo-tuberculosis. We do so with the more reluctance as he places in this category two conditions which, as he is at pains to explain, are in no way related to one another nor to tuberculosis. In the first half of the book Prof. Snapper gives his personal experience of Besnier-Boeck-Schaumann's disease (sarcoidosis of Boeck), and although he tells us nothing new about it the serial radiograms illustrating the course of the disease in the lungs are of particular interest. The author shares the view held by most recent writers that the tubercle bacillus plays no part in the causation of this condition, and he regards it as a "peculiar reaction of the reticulo-endothelium . . . under the influence of an unknown virus." The rest of the book is concerned with regional ileitis with reports of six cases illustrating the clinical guises that this disease may assume. The case reports are adorned with photomicrographs, photographs of operation specimens, and radiograms of opaque meals. This process is also agreed to be non-tuberculous, but when Prof. Snapper denies the existence of true hyperplastic ileocæcal tuberculosis he goes further than most of us would be prepared to go with him.

It is as pleasant as it is unusual to find a book by a foreigner and published abroad written in impeccable English. To those who have had the good fortune to meet Prof. Snapper this will not come as a surprise.

Diagnosis and Treatment of Diseases of the Blood

Second edition. By THOMAS ORDWAY, M.D., Professor of Medicine, Albany Medical College; and L. WHITTINGTON GORHAM, M.D., Clinical Professor of Medicine, Albany Medical College. Revised by RAPHAEL ISAACS, M.D., Associate Professor of Medicine, University of Michigan. London: Humphrey Milford, Oxford University Press. Pp. 605. 32*s*. 6*d*.

THIS volume was first reprinted from Oxford Monographs on Diagnosis and Treatment in 1930, and must at that time have been an excellent and useful book. It has now been revised by Dr. Raphael Isaacs, but has not been consistently modernised. There is no mention, for instance, of the part played by pyramidon in the ætiology of agranulocytosis or of pentose nucleotide in its treatment. Erythroblastosis fœtalis is not included in the anæmias of childhood. These and other serious faults of omission are regrettable because that part of the text which is not out of date—for instance, the description of the clinical signs and symptoms of the classic blood diseases like pernicious anæmia—is admirable, while the colour illustrations of blood-cells are clear and well produced.

Diseases of the Skin

For Practitioners and Students. Second edition. By GEORGE CLINTON ANDREWS, A.B., M.D., Associate Professor of Dermatology, College of Physicians and Surgeons, Columbia University; Chief of Clinic, Department of Dermatology, Vanderbilt Clinic. London. W. B. Saunders Co. 1938. Pp. 899. 45*s*.

IN spite of the fact that it contains much new matter, this excellent text-book has been reduced in size by nearly 200 pages and in price by 10*s*. The omission of the bibliographies may be regretted but most of the changes are improvements. The descriptions of diseases are clear and concise, the illustrations are of the first order, and the advice on treatment is sound and easy to follow. The paragraphs on X ray therapy are particularly good; the doses are given both in röntgens and in fractions of an erythema dose and the instructions, which are the outcome of the author's personal experience, are mostly detailed and precise. Only occasionally is the reader left in any doubt, as when he is advised on p. 249 to use X rays for acne only after all other methods of treatment have been exhausted, and on p. 253 to apply X rays early in order to cure the disease as soon as possible. The practice of many British dermatologists is to try other methods first in patients aged less than 15 or 16, and in older people to start X ray therapy early.

In the section on erysipelas, the reader is not helped to distinguish between chronic recurring true erysipelas, a very rare condition, and the much more common recurrent erysipelatoid eruption of the face. The use of thallium acetate for ringworm of the scalp in children is discussed and all will agree that the method should only be employed by experienced workers; at the same time there is good reason to think that this remedy has fallen into unmerited disrepute. Most of the mishaps associated with its use have been caused by faulty technique, and in children under five years of age it is the method of choice. The details in the article on syphilis, especially the notes on treatment, should appeal to practitioners. The space devoted to a description of Arsphenamine (606) and its preparation for injection is wasted, since this drug has now been superseded by Neo-arsphenamine (N.A.B.). The book is well got-up, and the print is easy to read.

L'Ipertrofia della Prostata

By Prof. N. CARRARO, Department of Urology of the Regia University at Milan, and First Urologist of the Alessandro Mussolini Hospital; and Dr. I. WUGMEISTER. Milan. 1938. Pp. 354. L.45.

So much has been written on prostatic enlargement that one is inclined to deprecate the issue of more monographs on this well-worn subject. On the whole, however, we agree with Prof. Marion's opinion, expressed in a foreword, that there is room for this one. Although current views on the symptomatology and anatomy of prostatic obstruction remain unchanged, treatment is in a state of flux; new ideas are continually being evolved and old ones discarded. The survey made by the authors is a wide one, embracing in its sweep not only the Italian work, but that being done in other European countries and in America, and they provide an excellent summary of recent progress in the surgery of the prostate. A controversy which centres round the name of H. Harris of Australia and which has seemed of some moment to British urologists is not even mentioned in this Italian work. In a comprehensive bibliography his name finds no place; have we exaggerated the importance of the issue his technique has raised, or have these authors ignored a contribution to urology which at least merited discussion? In other respects their survey is singularly complete and well balanced.

Introduction to Physiological Chemistry

Fourth edition. By MEYER BODANSKY, Ph.D., M.D., Director of Laboratories, John Sealy Hospital, Galveston, and Professor of Pathological Chemistry, University of Texas. London: Chapman and Hall. 1938. Pp. 686. 20*s*.

SCARCELY a page of this popular text-book has escaped the addition of fresh matter; for though the fastest movements forward in biochemistry during the last few years have been those made in our knowledge of the hormones and vitamins, there has been a steady all-round advance. The greatest change in the new edition is separation of the account of the digestion and chemistry of enzymes into two chapters of which the latter, as well as that on physiological oxidations, has been written by Dr. Oscar Bodansky. It is perhaps a pity that he has not included a brief account of tissue metabolism or any mention of the new ideas of Szent-Györgyi and Krebs on the mechanism of cell oxidation. In this connexion it might have been well on p. 159 to refer to Warburg's book on the "Stoffwechsel der Tumoren." The coenzyme referred to in line 16, p. 311, is more likely to be cozymase than the Warburg coenzyme. Among remarkably few printing errors we notice "andrenosterone" (p. 491), the missing double bond in the formula of progesterone (p. 496), and the fact that Cannan has been easternised to "Canaan" on p. 305 and militarised to "Cannon" in the index. The author is to be congratulated on condensing a mass of fresh information into the new edition, which is commended to every student and worker in biochemistry.

THE LANCET

LONDON: SATURDAY, DECEMBER 3, 1938

ASSISTED BREATHING

Lord NUFFIELD has generously offered to supply any hospital in the British Empire with artificial respiration apparatus made at his Cowley works to the design of Mr. E. T. BOTH. This offer marks the end of an experimental period in which mechanical means of resuscitation have been regarded rather as curiosities than as part of practical medicine. Aids to artificial respiration, however, are by no means new. Some months ago KING,[1] of Victoria, referred to two of the earliest methods used, which are interesting in view of modern developments: one was to inflate the patient's lungs rhythmically through the nostril with a bellows, the other was to roll him over a large wine-cask. The modern counterparts of these are seen in the various appliances by which air is forced into the lungs through a mask or other instrument, and in the tilting board, by means of which the diaphragm is moved up and down by the weight of the abdominal viscera. The use, particularly by laymen, of face-masks which are rhythmically inflated and deflated has been strongly condemned by YANDELL HENDERSON,[2] since much depends on correct adjustment and there is danger of inflating the stomach and damaging the lungs. MARTINEZ,[3] however, reports excellent results with such masks in new-born infants, and in experienced hands they may be extremely helpful. Nevertheless, there is much to be said for actual intubation of the trachea when insufflation is contemplated, and such intubation is said to be very easy in acute emergency owing to the relaxed state of the pharyngeal muscles. The fact that it should not be performed except by a doctor practically limits its usefulness, like that of the face-mask, to the lying-in hospital. Manual methods of artificial respiration, such as Schafer's, are usually all that is possible or necessary in cases of drowning. The later stages of resuscitation, and recovery from types of asphyxia in which breathing does not stop, may be hastened by inhalation therapy, but the question of artificial respiration is secondary. The questions are rather what gas mixture should be used and what appliance should be used to administer it.

The conditions in which mechanical assistance to respiration is urgently needed are those in which the respiratory muscles themselves are defective in action, as in diphtheritic paralysis, poliomyelitis, and progressive muscular atrophy. Insufflation, the tilting board, and manual artificial respiration are obviously inappropriate where the treatment must continue for a long time. Devices combining the maximum of comfort and convenience for both the patient and his attendants were last week demonstrated by the London County Council at the County Hall, Westminster. In principle they are straight-forward, ventilating the lungs by artificially produced movements of the chest wall without otherwise disturbing the patient. The simplest is the Bragg-Paul Pulsator, a pneumatic rubber belt fitted round the chest and undergoing rhythmic inflation from a motor-driven bellows. Each pulse of positive pressure compresses the thorax, driving air out of the lungs, and on release of the pressure the chest returns to its resting shape and air enters the lungs. Although expansion of the chest does not occur as it does in normal respiration, and the method is therefore not ideally "physiological," it offers the advantages of cheapness, simplicity, and free access to the patient for nursing purposes. The case of a man who depended for two years on artificial respiration of this sort is a sufficient testimonial to its efficacy.[4]

The Drinker apparatus, described in our columns as long ago as 1931,[5] embodies a more exact copy of normal physiological conditions in that the chest wall is expanded from the resting position by negative pressure rhythmically applied to the interior of a rigid box enclosing the body. The patient's head protrudes through a rubber collar and the suction causes an intake of breath which is expired by means of the normal elastic recoil of the lungs as the inside of the chamber returns to atmospheric pressure. According to the complexity of the model, which, of course, always includes a bed, there is more or less facility for examination and for certain manipulations by nurses. As a rule the patients can breathe for a short time without assistance so that the cover can be slid off occasionally. Large-scale models capable of containing several patients are in use in America, and in these the nurse can actually enter the chamber. A compromise between the Bragg-Paul and Drinker appliances is the aluminium cuirass which encircles the thorax only, being sealed to the body by rubber cuffs round the waist, arms, and neck. This simplifies nursing and produces a "normal" type of respiration through rhythmic suction applied to the air-space between metal and chest. It was used with success in a recent epidemic of poliomyelitis in Australia, but introduces the difficulty of fitting the patient and has four potential sources of trouble in the rubber joints. Certain improvements, such as the introduction of hinges at the side to facilitate application and removal, have already been made, and other inconveniences may yet be overcome. Types of apparatus used in Germany and said to simulate normal respiration very closely [6] depend on suction applied through a metal capsule to the abdomen. This actuates the diaphragm, but, owing to the difficulty of sealing the appliances to the body and their somewhat uncomfortable action, they have not found favour in this country. The worth of

[1] King, T., *Med. J. Aust.* Jan. 8th, 1938, p. 84.
[2] Henderson, Y., *J. Amer. med. Ass.* 1934, **103**, 750, 834.
[3] Martinez, D. B., *Ibid*, 1937, **109**, 489.
[4] Kerridge, P. M. T., *Lancet*, 1934, **1**, 786.
[5] Drinker, P., *Ibid*, 1931, **1**, 1186.
[6] Fischer, L., and Engeser, F., *Med. Welt*, Nov. 19th, 1938, p. 1664.

the three kinds of appliance on view at Westminster has been amply proved, and no hospital should be without at least one of them. Where resources are limited, the choice will probably be between the Bragg-Paul and the Drinker apparatus, for they fit any size of patient. Mr. BOTH'S design is a modification of the Drinker.

THE TREND OF PATHOLOGY

IN a memorial lecture printed on another page Prof. TOPLEY drew freely on E. H. KETTLE'S life and work for his illustrations of the place of pathology among the medical sciences. As he clearly shows, Kettle was highly representative of the pathological movements of the day; the development of his outlook and the succession of problems which engaged his attention were closely expressive of contemporary tendencies. In particular, though he remained first and foremost a morbid anatomist, he was deeply interested in function and he took a lead in the application of the experimental method to pathological problems. Prof. Topley points out the very characteristic difference between physiological and pathological methods of inquiry, at least as they are pursued at present. Physiology uses for the most part the method of "acute" experiments, that is to say experiments which can be completed in a few hours; pathology, dealing as it does largely with the gradual deterioration of function and structure which we call disease, demands long-term experiments and has to face the concomitant difficulties of controlling all the factors of the experiment. The application of the experimental method to pathological problems, so characteristic of Kettle's later work, is still in its infancy and there is obviously much scope for what, for want of a better term, may be called the experimental pathologist. The continued study of structure alone tends, sooner or later, to become self-sterilising; yet it is by no means good for science that structure should be relegated to an unimportant and subsidiary position. The complete biologist must always in some measure be an anatomist and, as Prof. Topley says, there is real danger that the swing of the pendulum will leave us with too few rather than too many morbid anatomists. Inevitably, in discussing the place of pathology among the medical sciences, the lecturer turned his attention to the educational value of pathology and its position in the medical curriculum. Prof. Topley believes, as indeed did Kettle, that early and systematic teaching is a potent, perhaps the most potent, factor in integrating medical education. There are of course dangers of crowding out other important cultural elements in education by early devotion to a specialist and vocational subject, but this may well be compensated if the subject is integrative and will influence medical men throughout their professional life. What is remembered and incorporated must surely be of greater value than what is unassimilated and forgotten. Prof. Topley is of opinion that the introduction of pathology as a tripos subject at Cambridge will prove a turning-point in medical education. Those who come into contact with the undergraduates are aware that the experiment is already justified by its results. Whatever may be urged in criticism of the course, it succeeds in engaging the real interest of the student—surely the acid test for the educational value of any subject. The design of preliminary courses in general pathology is still in the tentative stage, but it may not be fantastic to envisage the time when a "first" in pathology will be deemed an adequate recommendation for high administrative or executive posts. When that happens we may feel content that pathology has graduated from a vocational science into a means of liberal education.

HALF-HEARTED PASTEURISATION

THE long promised Milk Industry Bill has now been introduced.[1] It is a complex measure concerned mainly with milk as an industry, but certain clauses are of direct concern to a profession which is vitally interested in a safe, cheap, and adequate supply of an essential food-stuff to the community. The Milk Reorganisation Committee, which issued its report in 1936, were rightly worried by the persistence of a high retail price of milk despite increased production, and their chief proposal was the setting up of a permanent Milk Commission whose duty it would be to fix the prices to be paid to milk producers and those who bought milk in bulk from the milk boards. In the new Bill this proposal has not been adopted. A Milk Commission is to be set up and also a Milk Advisory Committee (with English and Scottish subcommittees) but the powers of the Commission are limited to keeping generally under review matters relating to the milk industry, to advising and assisting the Ministers concerned, and to undertaking certain special functions. One of these is to improve the organisation of the milk distributive service, and if necessary to make regulations to promote efficiency and economy in the distribution of milk and cream. It is possible that along these lines some economy in distribution will be effected, with a corresponding diminution in the cost of milk to the consumer. Part III deals with the provision of cheap milk to certain special groups—i.e., children in attendance at public elementary and secondary schools and to expectant and nursing mothers and to children under five years of age, the loss incurred by the milk marketing boards to be made good by Exchequer payments. This new extension to mothers and to children under five will be generally welcomed. The actual rebates are not mentioned as they are outside the scope of the Bill, which is only concerned with providing the industry with Treasury grants to cover any loss.

As was foreshadowed in the white-paper "Milk Policy" issued last year, increased grants are to be given to the producers of what are now called "quality" milks, most of the cost being repaid to the marketing boards from Exchequer payments. These additional payments per gallon of milk are highest for milk from attested herds

[1] See *Lancet*, Nov. 26th, p. 1266.

and for tuberculin-tested milk, and lower for accredited and standard milk. The first two categories being free from the risk of conveying tuberculosis, these increased grants have public-health value. On the other hand accredited milk although cleaner than ordinary milk is not a safe milk, and if, as is probable, the same will apply to standard milk any stimulus to their increase is of minor public-health value. The number of designated milks is already puzzling the public, yet in the Bill two new grades are introduced—viz., standard and certified—in addition to those already existing. Neither term is defined as regards quality and requirements either in the Bill or in Ministry of Health orders; until a new Milk Designations Order is issued defining them, we remain in the dark about the bacterial quality intended.

Turning to the major issue of safety, doctors will examine closely how the Bill deals with pasteurisation. While the proposals are generally on the lines indicated in "Milk Policy," they will find so many qualifying conditions and safeguards for the industry as to diminish very materially the value of what is planned. The pasteurisation of milk has been so carefully studied, and such a consensus of scientific and medical agreement has been reached as to its effectiveness and the urgent need for its application to safeguard the milk-supply from proved risks of conveying disease, that the medical profession would naturally expect bold and comprehensive steps to be taken. The very opposite is the case and a meagre permissive use is so hedged about with restrictions and exceptions that an innocent observer might think a dangerous procedure was being tried as an experiment. Under the Bill the most conceded is that a local authority may apply to the Minister of Health for a Pasteurisation Order limiting the milk to be sold retail to pasteurised milk, tuberculin-tested milk, certified milk, and sterilised milk. A clause even permits the Minister to exempt other types of milk from being pasteurised. In every instance (unless no objection is raised) there is to be a public inquiry. If the case is made out and an order made, it cannot come into effect for two years and this period may be extended by the Minister of Health. Every order has to be laid before Parliament before it becomes operative and either house can have it annulled, apparently without any evidence for or against. Furthermore there is a special exemption for retailers when 80 per cent. of their milk is supplied from a single herd, allowing them to sell this milk raw for a further three years—i.e., five years from the date of the order. Such retailers can also buy milk from each other and sell it raw and the individual herds from which the milk is derived need not be the same right through the year. There are no requirements as to the quality and purity of this milk and even if tubercle bacilli are found in it there is no power to cancel the licence and so prohibit its sale. In spite of the legally expressed wish of the local authority adequately to safeguard its milk-supply, the producer-retailers may get permission for as long as five years to continue to supply potentially dangerous milk. How can these limitations fail to discourage local authorities from making application for pasteurisation orders?

A SOCIAL PSYCHOLOGIST

WILLIAM MCDOUGALL, whose death was announced on Monday, was a man whose personal qualities and achievements were closely interlocked. In him were combined fine thinking, clean exposition, scientific method, originality, and a fighting spirit which made his frequent excursions into polemics as stimulating as they were entertaining. This equipment would have given any man a place in the history of science. MCDOUGALL'S outstanding contribution was his assertion of the part played by psychological forces in the formation of society. In 1908 his "Social Psychology" formulated a theory of instinct and emotion which, because of its precision and originality, guided psychological thought and sociological discussion. Although his rather rigid catalogue of instincts and their associated emotions did not win universal assent, the very fact that he made of psychology a dynamic science, in and through his doctrines, quickened both psychology and sociology. Rejecting from the outset a mechanistic view of mind he put forward a hormic hypothesis parallel to HALDANE'S more vitalistic theories. This view ran consistently through his thought. It determined his idea of the body-mind problem, his social psychology, his researches into the inheritance of acquired characters, and his speculations on national character and social ideals. He was a lively debater in the great historical discussion on the part played by emotions in psychological evolutions—a discussion started by Spinoza and ending to-day in the work of Freud and the philosophic speculations of Bergson. His contributions to clinical psychology have been less remarkable; they have been speculative rather than the results of direct observation; but in the realm of national psychology his more recent writings show a breadth of vision and a moral idealism very heartening at a time when materialistic concepts of history and of society threaten to dominate thought. In the history of psychology MCDOUGALL will stand as a pioneer who has stimulated, albeit indirectly, the growing interest in psychological medicine. His very versatility makes immediate appeal, for in him the elements were well mixed.

CONFERENCE ON MENTAL HEALTH.—The fifth biennial Conference on Mental Health will be held at the Central Hall, Westminster, from Jan. 12th to 14th, and the subjects and speakers which are announced include: is our national intelligence declining? (Dr. Lionel Penrose); should mental treatment be practised solely by doctors? (Rev. F. E. England and Dr. R. G. Gordon); the psychological factor in sexual delinquency (Dr. W. R. D. Fairbairn and Dr. G. de M. Rudolf); the organisation and staffing of out-patient mental treatment clinics (Dr. W. J. T. Kimber and Dr. Doris Odlum); mental hygiene and the press (Dr. J. R. Rees); and problems of adolescent instability and of juvenile delinquency (Dr. William Moodie, Dr. Emanuel Miller, and Dr. W. Paterson Brown). There will also be discussions on education and the emotional needs of the child, and on the place of the social worker in mental health.

ANNOTATIONS

PSYCHIATRY REVALUED

THE line to be drawn between mental health and mental ill health becomes steadily finer as our knowledge of the mind, and of the body of which it is a part, grows wider. Prof. D. K. Henderson delivering the Maudsley lecture to the Royal Medico-Psychological Association on Nov. 24th, defined psychiatry as that branch of medicine dealing with "those who, from a combination of circumstances, constitutional or acquired, are unable to adapt themselves satisfactorily to their particular situations in life because of certain signs and symptoms, certain maladjustments . . . which may or may not require treatment in the home, the school, the college, the factory, the clinic, nursing home or mental hospital." No doubt there are other places, too, where a little mental treatment would not come amiss, and Prof. Henderson foresees a future in which psychiatry will influence the legal, educational, and public health systems of the country. The passing of a "Mental Treatment" in place of a "Lunacy" Act he recognises as a hopeful sign and he sees another in the growth of such institutions as the Maudsley, and similar hospitals, numerous child guidance clinics, the Institute for the Scientific Treatment of Delinquency, and the Institute of Industrial Psychology. His wish, however, is to see psychiatric wards and clinics in connexion with every general hospital, thinking it a mistake to segregate large groups of mentally ill people in separate centres. His principle here is surely sound. The health of the body cannot be distinguished from the health of the mind any more accurately than sanity from insanity; everything is to be gained by grouping mentally and physically sick people in the same centre, so that general physicians and surgeons and psychiatrists alike are encouraged to think of the patient as a whole. Much of the public dread of insanity springs from the thought of segregation, which would be greatly mitigated if the man with a temporary depression and his brother with a bad leg were both in the same hospital. Moreover, as Prof. Henderson pointed out, the gradual spread of psychiatry would then influence the practice of general medicine, so that we might be reasonably sure of teaching and treating those emotional states giving rise to such physical symptoms as asthma, palpitations, rheumatism, dyspepsia and others, which are at present the despair of the physician or surgeon who is not psychologically minded.

TRANSMISSION OF HUMAN LEPROSY TO THE HAMSTER

THOUGH the leprosy bacillus was one of the earliest pathogenic organisms to be recognised microscopically, it has proved one of the most refractory to handle. In spite of over sixty years of work, neither its cultivation on laboratory media, nor its ability to give rise to progressive disease on experimental inoculation into animals has ever been satisfactorily established. It was therefore with great interest that bacteriologists read last year of Adler's[1] claim to have reproduced the disease in the Syrian hamster (*Cricetus auratus*). Confirmation of this claim is now afforded by Burnet,[2] who describes the experimental reproduction of the disease in one of these animals. Six hamsters were inoculated by inserting a small slice of fresh leprous tissue between the skin and muscle, and were killed 220 days later. Three of them had had their spleens removed just before inoculation. Only one of the animals at post-mortem showed evidence of progressive disease: in this animal, which had not lost its spleen, a subcutaneous leproma had developed, and commencing generalisation was apparent in the lymphatic glands, spleen, liver, and kidneys. Typical lepra cells packed with acid-fast bacilli were found in the spleen. Inoculation of the leproma into guinea-pigs was undertaken to exclude tuberculosis and the guinea-pigs remained well. Though there was only this one positive result among the six hamsters inoculated, and though other hamsters have been inoculated in other ways without success, Burnet is convinced that the experimental reproduction of human leprosy in hamsters has been definitely accomplished and that it now remains only to find a method of obtaining more constant results.

[1] Adler, S., *Lancet*, 1937, **2**, 714.
[2] Burnet, E., *C.R. Acad. Sci., Paris*, 1938, **207**, 690.

THE CIRCULATION IN REPAIR OF BONE

MODERN methods of treating injuries of the bones and joints take into consideration the effect of muscular activity in preserving the normal calcification of the bone. Instead of ghostly shadows of the neighbouring joints, which were the radiographic evidence of the results of weeks or months of immobilisation and inactivity, more or less normal bone shadows are now expected except at the site of injury. Rarefaction of bone in hyperæmia and increased density in ischæmia are now accepted facts and the radiograms are interpreted accordingly. It is still uncertain whether decalcification is the whole explanation of the rarefaction, and whether hypercalcification occurs without true sclerosis. It seems probable that in the reaction of bone to surrounding inflammation, neighbouring injury, and disuse the change is in the calcium salts, and that the architectural structure is unaltered. The standard explanation of the decalcification of disuse is that the bone is receiving a blood-supply in excess of its needs and is, in fact, in a state of relative hyperæmia. Blaire, of Portland, Oregon, offers a more detailed explanation.[1] He holds that the difference between a limb encased in plaster and lying inert and a limb in functional use can only be in the contraction and relaxation of the muscles in the active limb. The general effect of muscular contraction is to retard arterial flow in the muscles and to hasten venous return; with relaxation the opposite happens. Thus walking, for example, causes an alternation of ischæmia and hyperæmia. The application of a cast to a limb produces loss of tonus, softening of the muscles, and local hyperæmia. The blood flow is not resisted by the muscular contraction, and there is no help to the venous return. The long bones share in the hyperæmia because their medulla and periosteum are supplied by arteries which are derived, as a rule, from muscular branches. Diminished blood-supply, on the other hand, is associated with an acidosis which favours precipitation of calcium. Even in healthy state, bone is a relatively inactive tissue and hence attracts calcium to a greater degree than do other normal tissues. In the repair of a fracture the tissue changes at first take place without much active local circulation; the reaction of the hæmatoma causes solution of calcium from the

[1] Blaire, H. C., *Surg. Gynec. Obstet.* October, 1938, p. 413.

injured ends. Later, the hyperæmia of the adjacent bone causes further absorption of lime salts, and as the hæmatoma becomes alkaline in reaction the calcium is precipitated on the newly formed fibrils. Immobilisation of the fractured ends reduces the reactive hyperæmia, and the use of the limb thus protected re-establishes the normal alternation between ischæmia and hyperæmia. The value of massage, as Blaire sees it, is in the aid it gives to this alternation. Where there is already severe decalcification it is obvious that harm will be done by methods of treatment which induce hyperæmia, such as radiant heat and hot baths.

GLIAL CHANGE IN THE PSYCHOSES

BIOPSY studies of the brains of schizophrenic and manic-depressive subjects have lately been published by Elvidge and Reed,[1] working at the Montreal Neurological Institute. Small bits of tissue were obtained by brain puncture in an adequately controlled series of 19 psychotic patients, including 13 with schizophrenia, 5 with manic-depressive psychosis, and 1 with so-called toxic encephalitis. Care was taken to avoid complicating factors such as dehydration, fever, malnutrition, and the use of sedatives. Suitably stained preparations of this tissue showed "acute swelling" of the oligodendroglial cells of the white matter. This change, which is of a degenerative character but reversible in its earlier stages, is known to accompany coma and stupor as well as experimental intoxications in laboratory animals. It also appears rather rapidly after death; hence the necessity of using biopsy material if the true condition of the oligodendroglial cells in vivo is to be investigated. The demonstration of this change in psychotic patients suggests that the mental condition may depend upon toxæmia or some disturbance of metabolism. The limitation of the change to the white matter suggests further that the attack is primarily upon the nerve-fibres and secondarily upon the oligodendroglial cells. Hortega has shown that these cells stand in as intimate a relationship with the myelinated fibres of the central nervous system as do the sheath of Schwann cells in the peripheral nerves, and it has been maintained very plausibly that they are closely concerned with the nutritional requirements of the myelin sheaths. If this is true any structural alterations in the oligodendroglial cells might be expected to have serious repercussions upon the efficiency with which nervous impulses are conducted and hence upon the association of cerebral functions. Whatever the right explanation may be, the demonstration of this specific change in the neuroglia will stimulate further histological work in a sadly neglected field.

A BUREAU FOR HUMAN MILK

IT is announced that a National Mothers' Milk Bureau will be opened by the National Birthday Trust Fund at the new Queen Charlotte's Hospital, Hammersmith, on Jan. 1st, 1939. The bureau is to be under the supervision of the hospital staff, but the cost of maintenance will be borne by the fund. Through the generosity of Sir Julien Cahn, chairman of the fund, the most modern equipment is being provided. The object is to make human milk available for delicate babies for whom it has been medically prescribed. Details of price and methods of preservation and of guaranteeing the health of the donors are not yet available, but it is probable they will be largely based on the methods now used at the ten human-milk centres in the United States of America. The working of the scheme at the wet-nursing bureau of California's Babies Hospital, Los Angeles, has been described[1] in an illustrated article lately appearing in a popular publication and pictures of the procedure adopted at the Children's Welfare Foundation in New York were reproduced in the *Nursing Times* of Nov. 26th. At Los Angeles the mother wishing to supply milk is registered, with full particulars of her health and that of her baby. What is described as a strict medical examination is then carried out, including examination of a sample of blood taken from a vein. Details of expressing the milk are not given, but within two minutes of being obtained the milk is poured into moulds and frozen solid into discs. These are stored in a refrigerator and can be sent through the post in a sealed jar, which can be used for thawing the milk when required. At the Los Angeles centre mothers receive 5*d*. per ounce of milk supplied, and a mother can earn up to 25*s*. a day. The price charged for the milk is not stated, but it is supplied free for those who are too poor to pay. Low-temperature refrigeration is the method of preservation generally used in America, and for storage of large quantities of human milk for long periods it is probably the method of choice. For smaller schemes and when it is anticipated that the milk will be used soon after it has been obtained—as in a children's hospital—fractional pasteurisation is probably less expensive in the outlay for plant and in the upkeep. A method based on these lines at the Infants Hospital, Westminster, was described at a meeting of the section for the study of disease in children of the Royal Society of Medicine by Dr. M. J. Wilmers earlier this year.[2] The details of the new national scheme will be awaited with interest.

MEN OF THEIR DAY

AT a reception held at the Royal Society of Medicine on Tuesday evening Sir StClair Thomson entertained the guests with thumbnail sketches of medical notabilities of the Victorian age, illustrated by cartoons from *Vanity Fair* signed either "Ape" (Carlo Pellegrini) or "Spy" (Sir Leslie Ward). The society possesses 31 copies of these cartoons. *Vanity Fair* was started in 1868 by T. G. Bowles, who had deserted the Inland Revenue for journalism and politics. Pellegrini, a native of Capua, fought for Garibaldi before coming to England in 1864. Ward began to produce these cartoons in 1873 and continued to do so for thirty-six years. The biographical details which accompanied them were written by Bowles under the pseudonym of "Jehu Junior." Sir StClair selected ten for his commentary: Sir William Jenner (1815–98), Sir William Gull (1816–90), Sir Richard Quain (1815–98), Sir James Paget (1814–99), Sir Francis Laking (1847–1914), Sir William Dalby (1840–1919), Sir Alfred Copper (1838–1908), Sir Alfred Fripp (1865–1930), Sir John Bland-Sutton (1855–1935), and Sir Thomas Barlow. He had some amusing situations to narrate. Thus, Jenner told his students that, when he began to practise, he kept one of his trousers pockets for fees, the other for insults. At first he kept them both open, and the one for fees was always the less full; when he had made his way, he buttoned up the pocket for insults and would brook no affront from any man. Once Queen Victoria sent for him to come to Windsor, where he examined her and wrote a prescription. Her Majesty next sent for Gull, who did likewise and confirmed

[1] Elvidge, A. R., and Reed, G. E., *Arch. Neurol. Psychiat., Chicago*, 1938, **40**, 227.

[1] *Pearson's Weekly*, Oct. 22nd, 1938.
[2] *Proc. R. Soc. Med.* 1938, **31**, 759.

Jenner's opinion. After he had gone the Queen turned to Dr. James Reid and said: "Now that I have heard what these two great men have to say, I won't take their prescriptions but will just ask you to order another bottle of your rhubarb and soda mixture which always does me so much good." Gull sometimes found himself up against the Irish wit of Quain, who did not care for Gull's subtleties. At a consultation to which both had been called, Quain spoke first and detailed his suggested treatment and diet. Gull said that all the patient required was a warm bed. Quain retorted that he could not object to that in view of Gull's well-known habit of sending his patients to a warm place. On another occasion Gull suggested a little reserve in their expression of a prognosis, saying *Populus vult decipi*. Quain agreed that the public liked to be "gulled." In some sage conclusions Sir StClair remarked that the successful physicians of the great Victorian age did not appear to have devoted so much time as the moderns to distractions, such as bridge, motoring, and golf, but they kept fit and vigorous, generally to a ripe age, and their leisure was filled with social, sociable, and artistic interests. The biographies suggest that the public is not permanently attracted by any meretricious methods, but that the personality of the practitioner is what counts. "In our days," he said, "when medicine is rapidly becoming more and more scientific, the doctor is perhaps better able to mould his career without devoting so much care to developing and applying the art of his profession. But he will better succeed, and be a happier man, if he preserves his humanity, always remembering that the patient's first anxiety is to be cured and not merely studied."

ADMINISTRATION OF MALE HORMONES

ELSEWHERE in this issue Dr. Foss calls attention to a promising new method of administering androgenic substances for clinical purposes. Several years ago Fussgänger [1] showed that the male hormones are effective when applied directly to the surface of the capon's comb, and it has been demonstrated that androsterone when administered in this way may be a hundred times as effective as when it is given by intramuscular injection. In mammals the results of administration by unction are naturally less dramatic, since the usual test organs are not accessible for direct application, but favourable results have nevertheless been obtained. Thus Deanesly and Parkes [2] found that the restorative effect of testosterone on the accessory organs of castrated rats could be greater when an oil solution was rubbed into the shaved back than when an oil solution was injected subcutaneously; the response was much less than after an efficient form of subcutaneous injection. Moore, Lamar, and Beck [3] report that testosterone applied to the skin in the form of ointment will maintain normal, or even supernormal, development in the accessory organs of immature castrated rats. They observed also, using large doses of testosterone, that the unction technique is more effective than the method of subcutaneous injection used by them; this, however, seems to have been unsatisfactory. It is agreed that testosterone is more active than testosterone propionate when both are rubbed into the skin. Dr. Foss's results, taken in conjunction with this experimental work, make it certain that androgens can be effectively administered by unction. In view of the increasing availability of testosterone, the fact that larger doses are required than with an efficient method of injection is perhaps less important than is the great convenience of the new technique.

A paper by Miescher and Tschopp [4] raises the question whether administration of androgenic substances by mouth can be brought into clinical practice. Deanesly and Parkes [2] found that testosterone given orally to castrated rats has negligible activity. Miescher and Tschopp are able to describe more favourable results with methyl-testosterone, but even this compound is considerably less than one-tenth as active by mouth as by subcutaneous injection when tested for androgenic activity on castrated rats. This finding contrasts oddly with Parkes's recent observation [5] that the progesterone-like activity of both testosterone and methyl-testosterone is fully maintained when the substances are administered to rabbits by mouth. It is highly improbable that these compounds lose androgenic activity but retain progesterone-like activity when given orally; more likely they are better absorbed by mouth in rabbits than in rats. If such a species difference is found, caution must be observed in applying to clinical technique experimental findings about oral activity in lower mammals. For instance, a derivative of testosterone recently prepared by Ruzicka and Hoffman,[6] ethinyl testosterone, also known as anhydro-oxy-progesterone, has substantial progesterone-like activity but negligible androgenic activity, and is particularly interesting in being fully active by mouth when tested for progesterone-like activity on rabbits. In view of the apparent discrepancy between results obtained by oral administration of methyl-testosterone to rabbits and to rats, it cannot be assumed that the oral activity of anhydro-oxy-progesterone in rabbits necessarily applies to other species. Moreover, the human would be considered by many, from this point of view, to be more akin to the rat than to the rabbit. On the other hand it must be remembered that progesterone itself has only a negligible activity when given by mouth to rabbits, so that the species of the test animal is not the only factor concerned. Obviously the effectiveness of these substances when given by mouth to man cannot be forecast and must be determined by clinical experiment of the kind recorded by Dr. Foss.

NEW PSYCHOLOGICAL TESTS

SEVERAL ingenious intelligence-tests were described in a lecture given to the fellows of the Royal Anthropological Institute on Nov. 22nd by Mr. Kilton Stewart, of Utah, who has examined Philippine Negritos, Chinese, Ainus, Ghiliaks, Gurkhas, Tamils, and other races. He has found that there is no difference between these separate primitive peoples or between them and civilised Europeans. Preliminary tests with the Porteous maze seemed to show that the Negritos were less intelligent, but Stewart, dubious of the reliability of this test, invented a fairer one, in which a broken ring is worked through a series of holes in a metal strip. There are five versions of increasing complexity, and the examinee had to do each test five times, so that a curve of ability to learn by experience could be plotted. Stewart concluded that these tests were not simply a case of eye-hand coördination (surgeons do not perform the

[1] Fussgänger, R., *Medizin und Chemie*, 1934, **2**, 194.
[2] Deanesly, R., and Parkes, A. S., *Proc. roy. Soc.* 1937, **124**, 279.
[3] Moore, C. R., Lamar, J. K., and Beck, N., *J. Amer. med. Ass.* 1938, **111**, 11.
[4] Miescher, K., and Tschopp, E., *Schweiz. med. Wschr.* Nov. 12th, 1938, p. 1258.
[5] Parkes, A. S., *Chem. & Ind.* Nov. 19th, 1938.
[6] Ruzicka, L., and Hoffman, K., *Helv. chim. Acta*, 1937, **20**, 1280.

test better than do physicians), but that an emotional element entered into their performance. So he devised new psychological tests, in addition to the well-known free association under hypnosis, the recounting of dreams, and the drawing of pictures. One of them concerns direct suggestibility and the other indirect. In the former the subject stands erect blindfolded. He is told that he is falling forwards. Three different types of response are elicited: one man falls forwards, another backwards, and the third increases the speed of the normal swaying backwards and forwards but diminishes its amplitude. Indirect suggestion is made by seating the subject with one arm extended sideways in a partly flexed position and hidden from his view by a curtain. He is told to keep it perfectly motionless. The examiner sits opposite him and moves his own arm, whereupon the examinee in sympathy moves his about 1–2 cm. If the examiner is pulling against a spring or raising a weight, his efforts lead to a much greater movement of the examinee's arm—sometimes as much as 10 cm.

PLACENTAL EXTRACT IN MEASLES PROPHYLAXIS

IT is well known that attacks of measles can be prevented or attenuated by injection of convalescent serum, adult immune serum, or parental whole blood. Although convalescent serum is the most potent and therefore the most reliable for both purposes it is also the most difficult to procure. Adult serum on the other hand is always available and, although perhaps less reliable for prevention, is not inferior to convalescent serum when attenuation is the aim. The injection of parental whole blood among familial contacts is a valuable measure easily carried out by the practitioner and far too rarely employed in this country having regard to the long and favourable experience of W. H. Park in New York. Even so, it is clear that some source of supply of measles antibodies not dependent on blood donors is wanted if the prophylaxis of this serious disease is to make real headway.

Three years ago the council on pharmacy and chemistry of the American Medical Association[1] published a preliminary report on the value of placental extract for this purpose, and they are now able to offer more definite conclusions[2] based on subsequent research. The protein extract composed of globulins derived from the human placenta has been found by S. Karelitz to contain antibodies capable not only of protecting children exposed to measles but also of neutralising the virus of acute anterior poliomyelitis and the antitoxins of diphtheria and scarlet fever; and the diphtheria antitoxin content of placental extract is now used as a basis of standardisation. The council on pharmacy state that there is little difference in the efficiency of convalescent serum, adult serum or blood, and immune globulin, provided they are properly standardised and administered on a standard basis. In this connexion they quote Eley and Karelitz, who insist that the effectiveness of immune globulin depends on the dosage, potency, the type of exposure, the time element, and the age and size of the patient—factors too often overlooked in the comparison of results obtained with any immunising agents. Eley thinks that modification (attenuation) is desirable in most home cases provided that the children are not too young to be exposed even to a mild attack of measles, but that absolute prevention is essential in the control of measles in hospitals and institutions.

The report concludes that immune globulin is as useful for the modification of measles in the home as it is for the prevention of institutional cases. Unfortunately, however, its use is apt to be followed by reactions, which are not always mild and when attempts are made to avoid these by refinement and concentration of the extract, or by its oral administration, the result is a loss of potency. No doubt the reactions, which are attributed to tissue proteins, will eventually be eliminated; and, if this can be done, no æsthetic objections to the source of supply should be allowed to stand in the way of the wide use of immune globulin for the protection of children.

[1] *J. Amer. med. Ass.* 1935, **105**, 510.
[2] *Ibid*, Nov. 5th, 1938, p. 1764.

WHAT TO INVESTIGATE?

THE Joint Tuberculosis Council had invited a subcommittee to suggest subjects for investigation and a list of twelve was submitted to its meeting on Nov. 19th. They ranged from "The construction of sanatoria with special reference to capital expenditure" to "The relative value of the various blood tests in tuberculosis." In its final choice the Council were influenced by a request from the tuberculosis group of the Society of Medical Officers of Health for guidance on the organisation of the tuberculosis service in time of national emergency, and on the question of the infectivity of books in public libraries. It was decided to investigate these two subjects immediately, Dr. James Watt (Godalming) and Prof. W. H. Tytler (Wales) being appointed conveners of the two discussion groups.

EPHEDRA

THE medicinal properties of the Chinese plant *ma huang* or *Ephedra sinica*, a reed-like perennial about a foot high, are said to have been investigated by the Emperor Shen Nung five thousand years ago, and certainly it has long been used as a circulatory stimulant and respiratory sedative by Chinese physicians. According to Dr. K. K. Chen, who reviews the subject in the *Chemist and Druggist* for Nov. 26th, the chief active principle of the herb—ephedrine—was isolated by Nagai in 1887, but, curiously enough, although its mydriatic action was described[1] in *The Lancet* of 1898, its possibilities were not realised until 1923, when Chen and C. F. Schmidt resurrected it in the course of investigations at Peiping into the Chinese materia medica. Extensive clinical trials followed, and by 1925 the herb was being imported in bulk into this country. The ephedraceæ are a large and widely distributed family, several of whose species contain ephedrine in workable quantities. In normal times Spain and China supplied most of the world's requirements, but the civil war has entirely stopped exports from Spain, and in the last two months the Chinese shipments, which come mainly from the Tientsin area, have also fallen off. As a result increasing amounts are being imported from British India, where five species of ephedra grow, and experimental planting has also begun in British East Africa. The herb is packed in pressed bales weighing 2–3 cwt. and normally costs about £20 a ton in London, on the basis of 1 per cent. alkaloid. In the last two years, however, the price has gradually risen, and the current quotation is about £30 a ton. In 1930 G. Hildebrandt and W. Klavehn developed a process for the production

[1] Stephenson, S., *Lancet*, 1898, **2**, 24.

of synthetic ephedrine, which is identical with that obtained from the herb. Synthetic ephedrines are now on the market, and if their cost can be reduced they may come to compete seriously with the natural product.

RADIOTHERAPY OF CANCER

IN their annual report[1] issued this week the National Radium Commission deplore the lack of progress made towards the organisation of a national cancer service. The Bill that Mr. Walter Elliot hopes to introduce before Christmas will presumably set such an organisation on its feet, and it is important to note the Commission's firm belief that cancer treatment "should be undertaken only at, or in coöperation with, the large hospitals forming the existing National Radium Centres, or at new centres of equal status." In the absence of a national scheme including support for hospitals participating in such work the Commission have found it hard to promote the wider development of radiation treatment, but they have been negotiating with some success for the extension of radiotherapeutic services in Northumberland and Durham, Lincolnshire, East Anglia, South Lancashire, the West Riding, Kent, Wessex, South Wales, Devon, and Cornwall. Thus a radiological wing has been opened at the General (municipal) Hospital at Newcastle-upon-Tyne; the county medical officer of the West Riding has been authorised to send cases to Bradford Royal Infirmary, Leeds General Infirmary, or Sheffield Royal Infirmary; and in South Wales a scheme is being considered for a Welsh National Institute of Radiotherapy in which local authorities will be interested. In Kent and Lincolnshire, too, their plans of extension are well advanced; but in East Anglia, Oxford, Cambridge, Devon, and Cornwall no solution has been reached. What is needed is not only the extension of existing services but the establishment of new ones, and it is strongly felt that radium and X ray therapy must always be deemed inseparable parts of any scheme. The possible advantages of exposing malignant growths to large quantities of radium are still being explored, and thanks to the loan of a second 10 grammes obtained by the National Radium Trust from the Eldorado Gold Mines, Ltd., of Canada, radium-beam apparatus is now installed and working at Aberdeen Royal Infirmary (1 g.), Birmingham General Hospital (3 g.), Bradford Royal Infirmary (2 g.), Edinburgh Royal Infirmary (3 g.), Glasgow Western Infirmary (3 g.), Leeds General Infirmary (2 g.), and Sheffield Royal Infirmary (2 g.).

Besides reporting progress at their 13 national and 9 regional centres, the Commission provide an instructive analysis of 2534 cases of rodent ulcer, 464 of recurrent rodent ulcer, and 952 of epithelioma of the skin, all of which were treated with radium in 1930–34. Rodent ulcer shows a three-year net disease-free rate of 91 per cent. and a three-year net symptom-free rate of 73 per cent. for all stages, while the corresponding percentages for recurrent rodent ulcer are 75 and 48. Among the patients treated for epithelioma of the skin the three-year and five-year net survival rates for all stages are respectively 73 and 60 per cent., the corresponding symptom-free rates being 56 and 45 per cent. The Commission continue to pay close attention not only to the keeping of full records of the treatment of all patients but also to their after-history. Arrangements, moreover, have lately been made by which the national centres at Birmingham, Cardiff, Edinburgh, and Sheffield, with the help of the local authorities, will supply the Commission with records of all cancer patients seen at these centres and the coöperating hospitals, whether they are treated or not. It is thought that these records will provide useful information—for example, about the proportion of applicants who receive no treatment and the reasons why none is undertaken.

[1] Ninth Annual Reports of the National Radium Trust and of the Radium Commission, 1937–38. Cmd. 5885. H.M. Stationery Office. 1938. Pp. 63. 1s.

EPIDEMIOLOGY OF ST. LOUIS ENCEPHALITIS

IT is generally accepted that the epidemics of encephalitis in St. Louis city and county in 1933 and 1937 were something distinct from the von Economo type of encephalitis with which Europe became unhappily familiar during, and for a few years after, the late war. One of the many points of difference is the season of onset. In Europe the disease appeared year after year in cold weather (February to April), whereas both the St. Louis epidemics began in the hot season (July to September) and ended with the colder days of October.

Attempts have lately been made by workers in the department of pathology and medicine of St. Louis University to ascertain by statistical methods whether foci of encephalitis can be detected in particular areas of the city and county. Some of the results, as reported by Dr. Casey and Prof. Broun[1] seem important, for it was found that in both epidemics the disease appeared first and simultaneously in certain widely separated areas and continued to be most prevalent there. All these areas or foci of encephalitis "were situated within a mile, and all except one, within half a mile, of the small streams in St. Louis and St. Louis County," nearly all of which carry sewage. In fact there seemed to be a fairly close correlation between these foci and the existence of outdoor sanitary defects of various kinds, such as "the presence of weeds, open sewage, ponds, streams, and tin-can dumps." On the other hand, every district which was free from such outdoor sanitary defects, or situated a mile or more from them, not only was without epidemic foci but had a statistically significant scarcity of cases. The survey further showed that in these foci of encephalitis the factors of age, poverty, bad indoor sanitation, and overcrowding could be excluded; indeed some of the foci were in districts inhabited by persons with means above the average. Previous investigations had revealed no obvious connexion of the epidemics with the supply of water, food, or milk. The present survey increases the resemblance of the St. Louis disease, both in season and "locale," to such mosquito-borne infections as yellow fever, malaria, and equine encephalomyelitis.

TO-DAY, Friday, at 5 P.M., Prof. R. E. Kelly will deliver the Bradshaw lecture to the Royal College of Surgeons of England. He will speak on recurrent peptic ulceration. On Thursday, Dec. 8th, Mr. H. A. T. Fairbank will give the first Robert Jones lecture, on increased and decreased density of bone with special reference to fibrosis of the marrow, and on Thursday, Dec. 15th, Sir Humphry Rolleston will give the Thomas Vicary lecture, on the early history of morbid anatomy in England. All the lectures will take place at the college at 5 P.M.

[1] Casey, A. E., and Broun, G. O., *Science*, Nov. 11th, 1938, p. 450.

MEDICAL PREPARATION FOR "EMERGENCIES"

THE discourses of statesmen, leading articles in newspapers, and letters in lay and professional journals during the last few weeks have not been reassuring. No doubt some accusations of national medical unpreparedness have been exaggerated; but a sufficiency of admitted evil remains. The best service we can perform in such circumstances is to set out as dispassionately as possible the nature of the problems to be solved and the means available for their solution.

The burden of virtually all complaints has been a lack of coördination; local authorities, central authorities, professional or semi-professional organisations and individuals have exchanged recriminations. Before going any further, we should seek to see these elements of our public life in perspective.

THE CENTRAL AUTHORITIES

In the first place stands the central government itself, which for present purposes chiefly means the senior members of the administrative civil service.

It is easy on the one hand to write a lampoon on mandarins and limpets of Whitehall or on the other hand to compose a panegyric on the public services of men whose successful labours are credited to "statesmen" and whose personal rewards would be beneath the notice of a very minor merchant prince. It is more difficult to be fair. In his character of George Grenville, Burke spoke of Grenville's early introduction to the "business of office" and made this comment:—

"Much knowledge is to be had undoubtedly in that line: and there is no knowledge which is not valuable. But it may be truly said that men too much conversant in office are rarely minds of remarkable enlargement. Their habits of office are apt to give them a turn to think the substance of business not to be much more important than the forms in which it is conducted. These forms are adapted to ordinary occasions; and therefore persons nurtured in office do admirably well as long as things go in their common order; but when the high roads are broken up, and the waters out, when a new and troubled scene is opened, and the file affords no precedent, then it is that a greater knowledge of mankind and far more extensive comprehension of things is requisite, than ever office gave, or than office can ever give."

Among the things a comprehension of which office has never yet given is modern scientific knowledge. Even in these days of precocity few men will rise to commanding positions in the public service under 45 and many will be past 60. Even if the career of an administrator allured young scientists (which it does not), the civil service system of competitive examination twenty to forty years ago hardly encouraged any scientist but the mathematician and gave preference to a *literæ humaniores* candidate before a mathematician. There are some public offices the senior staffs of which could still read Aristotle with enjoyment; few whose senior administrators really know what any man of science, sanitarian or clinician, would regard as truisms.

This, however, is not to say that the administrator is an ignoramus and the physician or scientist all-knowing. In intellectual quality senior administrators are not inferior to the leaders of any other profession, nor are they less patriotic. They have knowledge and skill which clinicians and scientists easily underrate. Burke's wording has a touch of derision; in truth the forms of office are not things which every fool either knows or may easily learn. Every man's business is important to himself, and may be important to his country in a crisis. But the administrator is always in Whitehall; the machine must always function; before the emergency as well as during the emergency.

R. L. Stevenson's remark that it is not wise to save up one's appetite for dessert before one is sure there is going to be any dessert would be even more pointed if the guest prevented other guests who desired to dine from doing so. An administrator has to remember this; if he forgot it for a moment, the newspapers and his parliamentary chief would remind him of it. Before we reach to-morrow we must pass through to-day. We may illustrate the point from what was said by a deputation to Sir Thomas Inskip as reported in the Supplement to the *British Medical Journal* of Nov. 19th. One speaker is credited with the following remarks:—

"It was obvious that the ordinary voluntary hospital could not be organised for war service until it was known what demands were going to be made upon the personnel for other purposes, what was going to happen with regard to civilians in the neighbourhood of the hospital, and what would be done with the younger men who could be spared for war service."

To most of us, accustomed as we are to use language loosely but intelligibly, this does not mean, is not intended to mean, any more than that those responsible for the control and organisation of hospitals should be told plainly and quickly what is in the minds of administrators; that in preparation for emergency the administrator should not take the rôle of Sherlock Holmes while the hospital staffs are treated like the faithful Watson. But to an administrator, who admires (and sometimes achieves) precise language, such a sentence is horrifying. How *could* any administrator foretell exactly the course of an "emergency"? Even if he were a dictator he could not see into the minds of the gentlemen on the other side of the hill. Any plan may have to be changed; he *must* try to think out moves on the chessboard which will not irrevocably alter the position.

The administrator must weigh the claims of to-day against those of to-morrow. He is hampered both by his knowledge and by his ignorance. By his knowledge because he appreciates far more truly than the scientist the difficulties of any plan; by his ignorance because he does not grasp the significance of what seem to him mere technical details and cannot foresee accurately the nature of an emergency. We have a sufficient literature of the gross blunders in the use of scientific knowledge and of the wholly erroneous forecasts of the course of hostilities made by statesmen and soldiers in 1914–18 to establish both propositions. Many of these mistakes must inevitably be made again. All we can hope to do is to diminish their importance.

We might begin by dividing Preparation for Emergencies into two parts: Preparation which involves either no government control, at the most benevolent approval; Preparation which involves either a delegation of official power or the direct exercise of that power.

THE COLLECTION OF INFORMATION

A typical and important example of the first class is the compilation of a register of personnel. It will be instructive to consider the compilation of an ideal

register simply as a scientific problem. It is, in a sense, easier to compile a *catalogue raisonnée* of the medical profession than any other. A layman who attempted to classify lawyers from the Law List would not get very far. Our "Medical Directory" is more illuminating. From it alone an intelligent person might classify not too badly our heterogeneous profession into what the public calls specialists, general practitioners, and laboratory or public health workers. But the result would not be very helpful in an emergency. The voluntary questionnaire is more satisfactory and this has been adopted by the British Medical Association. But the questionnaire method has its defects. Human vanity (or modesty) involves limitations. It is not only that A may be mistaken in holding that operative surgery is his forte; he may correctly think himself a technically competent surgeon but incorrectly suppose that he could work well in a team.

Then again a classifying committee which can judge well the merits of surgeons may be no judges at all of biochemists. If we had a complete return of questionnaires, their occupational classification must be made by a very expert body. That would be the first and easiest stage—it might well mean the handing over of defined occupational categories to different committees. The next stage is the vetting of individuals. This is a harder business. For certain categories it would be comparatively easy—e.g., for the laboratory workers—because these hardly ever work isolated from opportunities of expert appraisement. The same remark applies to public health specialists. Indeed the fact that for several years most of the entrants to public health services have been trained in a small number of schools renders a well-informed catalogue easy to compile.

With the much larger class of clinicians, the difficulty is greater. Naturally it is not hard to judge those who are already or aspire to be "specialists" (in the popular sense). Their contacts with great hospitals and medical schools must needs be close. But for the greater body of practitioners the position is different. Modern conditions of practice have bridged the gulf between general practitioners and specialists; the supply of men competent to do the work of hospital physicians and surgeons is much greater than in 1914. To make a record of clinical ability fit for various services would involve more labour than that of a sessile committee, however expert, reading documents in London. Local inquiry, not through forms and circulars, would be necessary. All this, however, *could* be done and some of it has been done. A numerically complete, detailed record could be made. It could be supplemented by an equally detailed study of the medical students within sight of qualification. Respecting them very precise information is available. One could go further and estimate very closely the probable accession-rate to the profession under existing and hypothetical conditions. Suppose, for instance, that military reasons require that cities A, B, and C should cease to be places of medical education, how would this affect the accession-rate? Would it be practicable to increase the output at D? If so, under what conditions?

Such a complete account of the personnel of the present and immediately future medical profession could be rendered without any direct official interference; all that would be needed would be a benevolent neutrality. (Perhaps also an assurance that some official Sherlock Holmes would not duplicate part of the work. There is a limit to the amount of inquisition human beings can tolerate.)

But the criticism any practical man will make is this. I will suppose that the work you have described has been faithfully and accurately performed. That you really have not merely a complete statistical analysis but dossiers of a large proportion of the men and women whose names appear on the British Medical Register; so that your directing committee can not only say how many surgeons, pathologists, &c., there are and in what age-groups, but can say what sort of people they are. Who will *use* this information? It will be a formidable collection of cards, relating to persons scattered over thousands of square miles. Suppose that the Navy requires 100 surgical specialists, the Army 200, the Royal Air Force 300, and the Home Office 400. Who is to have first pick? Suppose that the best 1000 includes *all* the clinicians practising in the county borough of Barchester, is Barchester to be sacrificed in the national interest? Is it not probable that in real life your beautiful card-index will hardly be consulted at all, or at best be used as a rough indication of the scope of medical possibilities, individuals, and departments making the best bargains they can? These objections bring us to the second stage: official action.

THE DELEGATION OF POWER

It was to meet such objections that the British Medical Association formed a central emergency committee, and the proceedings of Nov. 8th last deserve particular attention.

Before, however, discussing these something must be said of the history of the undertaking. The British Medical Association were officially requested to compile a register on the lines of what we have discussed above, and the qualifications of the B.M.A. to organise such a work were great. It is true that the Association is primarily concerned with the interests, material and moral, of the medical profession and that not only does its membership not include the whole of the profession but that a certain number of medical men objected to its proceedings and advised their colleagues to give it no information; but these objectors were a small minority and the 5 per cent. who supplied no information, or insufficient information, perhaps even over-estimates their strength. It is also possible that the officers and active members of the Association are less familiar with the personnel and conditions of work of the scientific specialist activities of the profession than with those of general practice. But any defect here could be and no doubt has been remedied by coöption. So far then as the compilation and completion of an adequate record are concerned, the machinery constructed was efficient. But if this body were to pass from research to action, it needed to be strengthened. In the eyes of the general public the B.M.A. had some of the attributes, good and bad, of any sectional body, whether trades union or employers' association. Hence the need to have coöperation between the Association and the Royal Colleges with their immense traditional prestige. It is clear from the report to which we have already referred, that this coöperation had been secured before the deputation went to Whitehall.

The deputation submitted their proposals in the form of two resolutions which were not, perhaps, very happily worded, but their intention was quite clear. It was this. That *all* requisitions for medical personnel should pass before a single professional committee and that the several government departments should be estopped from dealing with individuals. The method was apparently to be this. The

requisitions of the various departments would be reviewed and perhaps modified by some member of the Government with plenary powers and then passed to the professional committee. This committee would then allocate individuals who would receive their instructions from the Minister or Government Department having plenary power.

In other words the professional committee did not seek authority to order any individual to do anything. They did not even seek the power to challenge the departmental requisitions. All they asked was that they should be empowered to choose the men, and that orders for personnel should not be placed individually. Customers were not to go to market but to use a central buyer, a buyer who was a much better judge than they could be of the quality of goods.

IMPLICATIONS

Prima facie such a proposal is so eminently reasonable, that it may seem difficult to raise objections. There are, however, many objections, good and bad. Unless these are faced, the plan will inevitably fail.

In the first place, unless the professional committee is taken very seriously, both by the Government and the general public, and its members are prepared to regard the work as a first charge upon their time, not merely in a crisis but long before a crisis, the committee will be a mere window-dressing. If the requirements of departments are to be met, if they are really to be forbidden to make their own arrangements with eager individuals, these requirements must come quickly to the committee and must come from *all* departments. That means that the internal governmental control of departmental orders (the analogue of Treasury control on financial requisitions) must be efficient and swift. In the next place, it would not be sufficient simply to forward requisitions and to have them dealt with. The committee must be kept informed of military plans which affect the number and location of hospitals. It might be their duty to point out that the fulfilment of such or such an approved requisition would render unworkable the existing plan for hospitalisation or, conversely, that some new plan of evacuation was inconsistent with a disposal of personnel already sanctioned.

To satisfy these requirements demands heavy sacrifices of administrators. It is, we think, inferential from the report that, while administrators have reserved an opportunity to accept the scheme without loss of face if compelled, they will do nothing without compulsion. The sacrifices demanded are of power and secrecy. It was a little amusing, or would have been amusing had not the subject been a grave one, to note the administrative horror of the thought that this coördinating authority might be a directing authority, "with powers of disposition over members of the profession." Sir Kaye Le Fleming's instant repudiation of so horrible an idea may have satisfied Sir Thomas Inskip, but hardly the administrators. After all, university examiners have no power to pass candidates; those lists scanned anxiously at South Kensington by youthful crowds are provisional only, until confirmed by the senate; but candidates have, rightly, more respect for examiners than the senate. If what the deputation wanted were really done, civil service administrators would lose much power. Further, for the reasons given above, much which is officially secret would have to be made known to persons not formally in the public service. Both sacrifices are painful. It is easy to see that the plan can be stultified in deed and accepted in word without any difficulty.

What is at present proposed is verbally quite vague. Let us take the two resolutions as printed:—

"That in view of the experience gained in the recent crisis, there is urgent need for the setting up by the Government of an authority for the central co-ordination, in time of emergency, of all Governmental and other civilian medical services and of the medical services of the armed forces—that is to say, a Government body to control demands for medical personnel."

"That the Emergency Committee, reconstituted to make it fully representative of all branches of the profession, be given full authority, in consultation with the appropriate Government organisation, for allocation to the various services of medical personnel in time of emergency."

As we have said, what was really desired is quite clear; but *litera scripta manet*. These are the formal resolutions. They would be literally implemented by a minute constituting any three civil servants or ministers the "authority" of the first resolution, and empowering the emergency committee (or a rump of it with additional members) to act "in consultation" with this authority as asked in the second resolution. Of course nothing quite so absurd would be done. A middle course would be followed, which would *look* as much like what was asked and *be* as much like its opposite as possible.

If, as we believe, the proposals of the emergency committee are fundamentally sound, much more than a deputation, or a dozen deputations, to Ministers will be necessary. We think that the proposals may require amplification and must be given much wider publicity. We make the following suggestions for amplification, but these are plainly mere suggestions to be discussed.

PROPOSALS

The professional committee when formed should, we think, lose its present nominal connexion with the British Medical Association but should not acquire a direct official status.

To the B.M.A. belongs the credit of not only initiation but a solid basis of achievement. But the general public might prefer the new body to appear as well as to be wholly independent of any professional body. It should be small, composed of men of established professional reputation in the prime of life prepared to make this national task a primary interest. It should not be representative, in the sense of having as members persons expert in all the special branches of relevant knowledge. Such a body would be too large to act decisively. To meet the necessary defects of specialist knowledge in the professional committee, panels or subcommittees of experts should be formed. In this way an effective liaison with other committees could be maintained. We are naturally concerned with medical personnel and defects of medical organisation. But we need not suppose that other scientific personnel was registered, organised, and distributed in Crisis Week any more competently than our own colleagues. Evidently a competent secretarial organisation and therefore a considerable expenditure of money are implied. Upon this rock the whole enterprise may easily founder. Or, put in a different form of words, it can easily be represented that it would be far simpler to attach the committee (as advisers) to an experienced civil servant invested with appropriate powers.

We stated at the beginning what arguments can be advanced in favour of such a course. We believe, however, that the public might be convinced that

these arguments are unsound. The essential point to make is that the powers of the committee must be more than advisory—that they must, within defined limits, be executive. Plainly there must be limits; the committee must not seek to be dictators of the nation or even of the medical profession. Having recommended such or such a distribution of personnel, the committee must submit if the highest executive power in the land, His Majesty's Ministers, reject or vary that recommendation. But nothing must intervene *between* the committee and the highest authority having final responsibility.

It is idle to expect that this plan, or any plan, can be free from defects. Should a crisis come upon us within a few months it will inevitably fail. If public interest in the position is allowed to die down or is diverted into some domestic channel, then again ultimate failure is inevitable. But at the present time there is at least a chance of effecting a permanent reform in our method of preparing for emergencies.

POST-GRADUATE LECTURES

THREE weeks ago we published summaries of two of the lectures delivered at post-graduate courses held at London hospitals at the opening of the winter session. Of the two that follow, Dr. Cooksey's was given at King's College Hospital and Mr. Winterton's at the Middlesex Hospital.

HEAT THERAPY

(DR. F. S. COOKSEY)

THE increasing use of electricity has brought a number of new methods of applying heat to the tissues. With these methods the clinical indications for heat have been somewhat extended by the introduction of deep heat therapy, but the more important advance is the greater precision with which heat can be applied.

Heat is transferred from a hotter to a cooler body by conduction, convection, and radiation. Conduction occurs when the cooler body is in close contact with the hotter, such as a fomentation, poultice, or electrically heated pad or blanket. The amount of heat transferred depends upon the difference in temperature between the two bodies, the time the heat is flowing, and the ability of the bodies to conduct heat. The difference in temperature is limited by the skin tolerance, and is sustained for only a short time when using a fomentation and for a little longer with certain poultices. The electrically heated pad has the advantage that the difference in temperature can be maintained and the uncomfortable initial high temperature of a fomentation is avoided. The common practice of allowing patients to use these pads for indefinite periods is an abuse of a valuable therapeutic agent. The tissues become accustomed to heat if it is prolonged, and the stimulus to the circulation is lost; further, the pain of many acute suppurative and neuritic conditions is relieved by the correct dosage of heat and increased by an excess. Improved results are obtained if the pads are applied at stated intervals, and the duration of application should be prescribed by the doctor.

The poor heat conductivity of the skin precludes transferring large quantities of heat by conduction, and, furthermore, the heat so conducted is rapidly dissipated by the superficial circulation so that the deeper structures are not heated directly. The dissipation of heat by the circulation is analogous to loss of heat by convection, and it must be remembered that in conditions in which the local circulation is impaired the amount of heat applied must be reduced or there will be a risk of burns.

The transference of heat by radiation depends upon the fact that a hot body is at a given temperature by virtue of energy produced within it, and that this energy is constantly emitted as a wave-like disturbance of the ether in the same manner as light. The energy of heat or light as it is transmitted through the ether is referred to as a ray of heat or light. When heat rays fall upon another body they may be transmitted unchanged, reflected from its surface, or absorbed and converted back into heat so raising the temperature of that body.

Heat rays are one of the forms of radiant energy of which other examples are light, wireless waves, ultra-violet rays, X rays, and the gamma rays of radium; they all travel at the speed of light and their characteristics depend upon their wave-length and frequency. Since the velocity is a common factor it follows that the wave-length varies inversely as the frequency. The heat rays are situated beyond the red end of the visible spectrum; they are invisible and are known as the infra-red rays.

As the temperature of a body rises so the wave-length of the energy it emits becomes shorter. The extent to which this radiant energy penetrates human tissues before it is absorbed and converted into heat varies with its wave-length and hence with the temperature of the radiating body. It is generally held that penetration is greatest with wave-lengths corresponding to a body just below dull red heat, and infra-red generators are constructed to operate at this temperature. Since a dull black body is the most efficient radiator of heat the radiating elements of infra-red lamps may be constructed of graphite; these are the so-called "black body" generators. An older form of lamp is the incandescent electric bulb with a carbon filament. This operates at a somewhat shorter wave-length and emits visible light as well as infra-red rays, but in practice its action on the tissues does not materially differ from the true infra-red lamp.

The advantage of the infra-red lamp over fomentations and electrically heated pads is that a proportion of the incident radiation penetrates the tissues to the depth of a centimetre or so, and hence a greater amount of heat can be applied without overheating the skin, and a measure of direct heat reaches the superficial structures.

Infra-red lamps are simple to use, and it is easier to instruct a patient in the use of such a lamp than in the efficient application of a fomentation. Inexpensive models are satisfactory provided care is taken that a misshapen reflector does not bring the rays to a focus on the skin and so form a hot spot liable to cause a burn. A much greater quantity of heat can be applied with a lamp than with fomentations, and whilst this is an obvious advantage in many circumstances, it must be remembered that too prolonged application may be detrimental. Dosage should be regulated by using the lamp at a fixed distance and varying the time of the exposure. The working distance depends upon the strength of the lamp and can be determined by finding at what distance from the skin a just visible heat erythema

is produced after five minutes' exposure, the lamp having been switched on some ten minutes before the test to ensure that it has developed full strength. Common errors are using the lamp too near, so that a pronounced heat erythema is produced, and too long exposure. Overdosage is generally indicated by an increase of pain within one or two hours of treatment. Acute inflammatory conditions require short exposures at frequent intervals. Chronic arthritis and myositis will tolerate longer exposures and the frequency of exposure can be reduced.

Other electrical methods of applying heat depend upon the use of the high-frequency alternating currents—the so-called diathermic currents of long, short, and ultra-short wave-length. These currents are oscillatory and change their polarity so rapidly that they do not stimulate sensory or motor nerves. As they flow through the tissues they are partly converted into heat in overcoming the electrical resistance. High-frequency currents may flow as conductive currents through tissues of high conductivity such as all vascular structures. In highly resistant structures such as fat and bone they act by the development of displacement currents, and, if they are allowed to flow through an insulated cable wound as a coil round a part of the body, eddy currents are induced in the tissues in proportion to their electrical conductivity.

The transmission of these currents across the tissues is extremely complex; but in general it may be said that conductive currents are developed best by long-wave diathermy, eddy currents by short-wave, and displacement currents by ultra-short wave diathermy. All these currents produce heat in the tissues in which they are flowing, and the selection of the wave-length depends upon the structure of the region of the body it is desired to heat. The principal advantages of the newer short and ultra-short wave currents are that they allow us to heat bone, including joints and the nasal sinuses, somewhat more efficiently and that they do not require electrical contact with the tissues. They are applied by metal plates separated from the skin by air, glass, or rubber, so that treatment is not complicated if the skin surface is broken. Using suitable apparatus a great quantity of heat can be applied without overheating the skin and in this way a body temperature as high as 106° F. can be maintained in the technique of electro-pyrexia.

A non-thermal physical action of the ultra-short waves has been suggested, but there is no satisfactory evidence in support of the theory as yet.

CLINICAL USES OF THE FEMALE SEX HORMONES

(MR. W. R. WINTERTON)

THE whole endocrine system is controlled by the anterior lobe of the pituitary, which produces hormones that regulate the gonads, thyroid, suprarenals, pancreas, and mammary glands, and governs the growth of the skeleton.

The gonadotropic hormone acts on the ovaries. It consists of two parts: one responsible for the development of the follicle and ovulation, and the other for the formation of the corpus luteum.

During the development of the Graafian follicle the œstrogenic hormone is produced in large quantities. The activities of the œstrogen are distributed fairly generally throughout the body, but it is on the endometrium that its action is most noticeable. During menstruation a large part of the endometrium is shed, and œstrin stimulates the development of a new endometrium as far as the proliferative phase seen at ovulation. After ovulation the production of œstrin gives way to a large extent to the production of progesterone, the hormone of the corpus luteum. This acts mainly on the endometrium and changes the simple straight glands of the proliferative phase to the dilated corkscrew glands of the secretory phase. By endometrial biopsies it is possible to judge whether ovulation and corpus luteum formation are taking place. Progesterone also inhibits uterine contractions and is here antagonistic to œstrin. The action of œstrin can counteract the effect of the corpus luteum. Œstrin can also inhibit certain of the anterior pituitary hormones. Large doses given to half-grown rats inhibit the growth hormone, and the rats remain dwarfs.

Besides the gonadotropic hormone from the anterior lobe of the pituitary there is an anterior-pituitary-like hormone found in the urine during pregnancy. The actions of this hormone, prolan, are similar in many respects to those of the true gonadotropic hormone, but in an animal in which the anterior lobe of the pituitary has been removed it is impossible to produce œstrus by the injection of prolan. There is therefore an important difference between the true gonadotropic hormone and prolan. Recently doubts have arisen as to whether prolan has any action at all on the human ovary, although it certainly has an action in other species. This hormone is produced by the chorionic villi of the placenta and not by the pituitary. It is responsible for the reactions in the Aschheim-Zondek and Friedman tests for pregnancy. The pregnancy urine is injected into immature mice or rabbits and the prolan which it contains produces ovulation and corpus luteum formation. Inspection of the ovaries within a short time of the injection enables one to say whether or not the urine was from a pregnant woman.

We have therefore at our disposal for gynæcological conditions four hormones: the gonadotropic hormone; the anterior-pituitary-like hormone (prolan); œstrin; and corpus luteum hormone (progesterone).

SOURCES OF HORMONES AND MEASUREMENT OF DOSES

The gonadotropic hormone is found in large quantities at the fourth month of pregnancy in the serum of the pregnant mare, and this forms the present source of our supplies. The exact chemical composition of the substance is unknown. It is a protein molecule and therefore is inactive if given by mouth, as is the case with all pituitary preparations. Since the chemical composition is unknown, the substance is measured in biological units—usually in rat units.

Anterior-pituitary-like hormone (prolan) is obtained from pregnancy urine. Again the exact chemical composition is unknown, and the hormone is measured in rat units.

Œstrin is the generic name for the œstrogenic hormones. Two forms occur naturally: œstrone and œstradiol, the latter being four times as active as the former. Œstradiol is the substance secreted by the ovarian follicles and œstrone the product excreted in the urine. These may be prepared as the benzoate esters, which have a more prolonged effect than œstrone and œstradiol, which are rapidly absorbed and rapidly excreted. Since the exact chemical composition of these substances is known, they are measured in international units (I.U.), 1 mg. being equal to 10,000 I.U. Another unit is used for the benzoate

ester: the international benzoate unit, equal to 5 I.U. Œstrin can now be prepared synthetically. It is not destroyed when taken by mouth, but when it is necessary to use large doses it should be given by injection.

Corpus luteum hormone used to be obtained from the corpora lutea of sows and whales, but recently it has been synthesised, and now it is prepared commercially in this way. It is measured in international units, 1 mg. representing 1 I.U.

HORMONE THERAPY

Endocrinology is entirely substitution therapy; unless we can overcome the basic cause of any disturbance, hormones are of greatest value in temporary conditions. We have a powerful weapon in our hands, and the biochemists have made very great advances, but we are still ignorant of the quantities of the hormones produced in the body. At present hormone assays are unreliable. In diabetes we can estimate the level of the blood-sugar and from that judge the amount of insulin required, but we have no such estimation in the case of the sex hormones, and so the whole of the clinical side of the question is rather of a "hit or miss" kind. The conditions in which hormone therapy can be used to the greatest benefit are the menopause and conditions associated with it and certain abnormalities connected with pregnancy.

Very great care must be taken to examine the patient thoroughly before ordering hormone therapy. Grave mistakes can be made by treating symptoms before a correct diagnosis has been reached. Organic disease must be excluded, and this may require a dilatation and curettage to avoid missing a carcinoma of the body of the uterus or other serious condition.

At the *menopause* there is a period of a few years in which a small proportion of women suffer from symptoms, such as hot flushes and headaches, of sufficient severity to make them seek advice. Some of these symptoms may be controlled by drugs, but œstrin is far superior. The woman is passing from the stage of active sexual life to senile life, and the process is accompanied by a fall in the œstrin level of the body, and until the body is accustomed to this the patient may suffer from menopausal symptoms. It is in these cases that œstrin can be given to help the patient over the change. The dose of œstrin varies with the severity of the symptoms. The flushes can be controlled in many cases with 1000 I.U. of œstrin daily by mouth; in others it may be found necessary to give as much as 30,000 I.U. a day, but injections are rarely required. In the more remote effects of the menopause, such as *kraurosis* and *senile vaginitis*, œstrin is again of great value. Before the advent of the œstrogens we had no effective method of dealing with these conditions. It is often necessary to give very high doses. Sometimes 50,000 international benzoate units given by injection twice weekly may be necessary and may be combined with local treatment by œstrin pessaries. This is continued until there is a response, usually in 3–6 weeks. The trouble may recur, in which case the treatment may be repeated. The œstrin acts by increasing the nutrition of the vulva and vagina and the amount of glycogen in the epithelium, thereby enabling it to overcome the infection.

The principles of the treatment of *vulvovaginitis in children* are the same as in old age. It is often gonococcal but not necessarily so. In the adult of the childbearing period the gonococcus causes a vulvovaginitis which is rapidly overcome by the natural resistance of the patient, and the disease remains as a chronic cervicitis and infection of the deep vulval glands. In the child the glands are only partially developed and are therefore not very liable to infection, which remains confined to the mucosa of the vulva and vagina. By giving œstrin the epithelium is developed to the adult stage and so enabled to overcome the infection. Small doses only are required, and 3000 I.U. daily by mouth and a weekly injection of 10,000 international benzoate units generally overcome the infection in about three weeks. No local treatment is required beyond keeping the parts clean. *Pruritus vulvæ* requires careful examination to exclude trichomonas discharges, dirt, diabetes, eczema, and other conditions which might cause irritation. When these have been excluded, there are cases for which no cause can be found. Many of these occur about the time of the menopause, and one may try injections of œstrin. Large quantities are required; 50,000 international benzoate units or more should be given twice weekly. Although many clinicians have reported good results, my own results have been disappointing. In *leucoplakic vulvitis* it is essential that the cases should be carefully watched. If the condition fails to respond or fissures appear, hormone therapy should be discontinued, owing to the risk of malignancy, and a vulvectomy should be performed.

In some conditions complicating pregnancy the results of hormone therapy are good. *Threatened miscarriages* respond to injections of corpus luteum. Excellent results follow the administration of 5 I.U. given when the case is first seen, followed by 2 I.U. twice a week for some weeks. The corpus luteum helps the embedding of the ovum and inhibits uterine contractions. *Habitual abortions* are also treated by corpus luteum hormone, 2 I.U. given twice weekly till the thirty-second week, beginning as soon as the first period is missed. The results are about 75 per cent. successful. Before embarking on this treatment it is most important to exclude any constitutional disease, such as chronic nephritis or syphilis. In *missed abortion* the uterus fails to expel the dead ovum. Œstrin can be given as an antagonist to corpus luteum and to stimulate uterine contractions. This treatment is of greatest value after the third month. By giving 50,000 international benzoate units six-hourly for about five doses, followed if necessary by a medical induction, it is possible to produce uterine contractions in most cases, although as a means of inducing normal labour it is of no value. On the same principle it has been used in the treatment of *uterine inertia*. The results with a similar dosage to that described in the treatment of missed abortion are not entirely satisfactory.

The use of œstrin has been advocated to *inhibit lactation*. Large doses were given which acted by blocking the anterior lobe of the pituitary. Recently it has been found that smaller doses given by mouth are also effective. In my experience it is of most value when given before the appearance of milk in the breasts; 10,000 I.U. a day for two or three days given orally is usually adequate and renders unnecessary bandaging the breasts, purgation, and restriction of fluids. After the milk has appeared the results are not so good, but the œstrin is a definite help in stopping the secretion of milk.

In the treatment of *primary amenorrhœa* hormones are at present useless. Hormone therapy is followed by bleeding more frequently in cases of secondary amenorrhœa, but it rarely continues automatically, and, since so many cases of secondary amenorrhœa recover spontaneously, it is extremely difficult to judge the effects of treatment. Amenorrhœa is

probably harmless to the patient, and treatment by hormones is expensive, unsatisfactory, and rarely indicated.

In the treatment of *menorrhagia* hormones should only be tried after organic disease has been excluded. In women under 35 it is essential to preserve the uterus and ovaries as functioning organs, if this is possible without endangering the health of the patient. Corpus luteum may be given in doses of 2–5 I.U. which will act as an antagonist to the œstrin and stop the hæmorrhage; but, though the symptom is cured temporarily, nothing has been done to prevent its recurrence, which will almost certainly take place. Attempts have been made to treat menorrhagia with gonadotropic hormones, but so far not very successfully. The preparations are new, and possibly we are giving inadequate doses. In women over 35 the preservation of the uterus is of less importance, and the menorrhagia is best treated by hysterectomy, radium, or X rays. The menorrhagia of puberty responds well to treatment with pregnancy urine hormone in doses of 200 rat units daily until the bleeding ceases. The results with gonadotropic hormone are even better. It must not be forgotten, however, that most of these patients eventually recover spontaneously.

In *dysmenorrhœa* the results of hormone therapy are disappointing. Injections of corpus luteum on the fourth and second days before the period is due are sometimes effective in damping down the painful uterine contractions, but on the whole the results are not good. When the uterus is hypotrophic, large doses of œstrin during the first half of the intermenstruum, followed by corpus luteum before the period is due, has been successful in many cases, but it is difficult to exclude a psychological effect.

Sterility is due to a great many factors. When the gross causes have been excluded, we are left with a number of cases for which it is difficult to find a cause. In a few cases an examination of the endometrium towards the end of the intermenstruum reveals absence of ovulation and of corpus luteum formation. These may be cured by gonadotropic hormones, but at present the best dosage and the best time of administration are uncertain. Apart from these special cases nothing can be done.

Hormones have proved of great value in the treatment of some diseases, and I think that in the future, when we know more of their action, they will be of still greater importance. Meanwhile we must guard against unqualified enthusiasm in considering them the panacea of all ills.

SPECIAL ARTICLES

BRITISH EMPIRE CANCER CAMPAIGN

THE annual report of the Cancer Campaign is a bulky volume of some 260 pages devoted almost entirely to progress reports of the numerous institutions and individuals whose work is subsidised. These reports are introduced by an instructive summary written by Mr. J. P. Lockhart-Mummery, and the usefulness of the report is further enhanced by a detailed subject index.

The variety of the problems attacked, and of the methods used for their solution, is impressive. Mr. Lockhart-Mummery pays tribute to the success obtained by the scientific investigations of cancer which may be said to have begun at the beginning of this century by saying: "In less than a life-time both knowledge and treatment in regard to tumours have improved out of recognition. It is only within the last few years that operations for cancer have been based on a precise knowledge of the spread of the disease." That this has been achieved by a relatively small number of organisations working independently of each other in this country and abroad is an answer to the suggestion for the coördination of cancer research which has been made occasionally in the past.

Even the more important results recorded in the report cannot be briefly reviewed. We must be content therefore to indicate the main lines along which advances have been made and thus give an impression of the general trend. The investigations recorded fall into two main groups: those concerned with the origin and growth of cancer and those concerned with its treatment.

CAUSATION

A large number of *carcinogenic substances* have been synthesised during the past year, and the problem which has now arisen is: How do these substances, most of which are insoluble in water, produce their effect on the cells? A few years ago P. R. Peacock of the Glasgow Royal Cancer Hospital showed that the water-insoluble carcinogen, benzpyrene, was rapidly transformed into a water-soluble fluorescent substance which is excreted in the bile and eliminated in the fæces. The isolation and identification of this substance is now being undertaken. J. C. Mottram and I. Doniach of the Mount Vernon Hospital have found that carcinogenic agents are photodynamically active (see *Lancet*, 1938, 1, 1156) and the report from the research institute of the Royal Cancer Hospital contains the interesting statement that "the carcinogenic hydrocarbons are very difficult to obtain chemically pure, partly on account of the facility with which they undergo photo-oxidation." It is possible, therefore, that photochemical oxidation plays a part in the carcinogenic process. Investigations along this new line are now being undertaken.

The *virus theory* of cancer is being tested by investigations on the filtrable tumour. In the Bland-Sutton institute of the Middlesex Hospital the size of the Shope papilloma virus of rabbits has been determined and has been found to be about the same as that of the virus found in the Rous sarcoma of fowls. In the research institute of the Cancer Hospital a sarcoma has been produced in a mouse by a carcinogenic agent, which has occasionally been transmissible by cell-free filtrates. This is the first filtrable sarcoma of a mammal observed so far. In the course of its propagation by L. D. Parsons a number of interesting and unexpected facts have been observed, which have just been published. A detailed comment of this paper will appear in our columns.

The factor of *susceptibility* has been studied by observations on genetically pure strains. In Newcastle F. C. Pybus and E. W. Miller have bred from the Simpson strain with a high incidence of mammary cancer a new strain with a high incidence of sarcomata, which are 2½ times more frequent in females than in males. A strain with spontaneous bone tumours is also being developed.

The experiments by Mrs. K. J. Bonser in Leeds on differences of the sensitivity of the skin of various pure strains to carcinogenic agents, and those of

P. A. Gorer working at the Lister Institute on the antigenic basis of tumour transplantation, are also of considerable interest.

TREATMENT

Passing now to the treatment of cancer there are numerous investigations on the radiotherapy of cancer, some experimental, others clinical. The method of tissue culture has been used by F. G. Spear and his collaborators at the Strangeways Research Laboratory at Cambridge and by Mrs. E. Paterson at the Christie Hospital and Holt Radium Institute in Manchester. In the latter institution an extensive investigation on the time-factor in radiotherapy has been carried out by M. A. C. Cowell. The same problem has been attacked by G. C. Fairchild at the Mount Vernon Hospital, where also the biological effects of neutron radiation have been studied by L. H. Gray. In Newcastle F. Dickens has investigated the rationale of the short-wave therapy of cancer. He confirms the conclusion of H. J. Taylor that this method of treatment produces its effect not through any specific action but simply through the production of heat. This has led to a determination of the thermal death-times for malignant tissues, and it has been found that at a temperature of 41·5° C. (106·7° F.) malignant cells of the rat are killed if the exposure is sufficiently long—over six hours. This is of interest because it brings the thermal death-time within the range of general hyperpyrexia tolerable to animals and humans. The suggestion that a general hyperpyrexia may produce a therapeutic effect in cancer has been made repeatedly. The results obtained with Coley's fluid have been ascribed to this effect and in an investigation into the history of a number of well-authenticated spontaneous regressions of cancer in man the occurrence of a hyperpyrexia was noted frequently. The remarkable therapeutic effects obtained in America by L. C. Strong by the injection of heptaldehyde have been tested in various laboratories, but the results appear to have been disappointing so far.

In the mastitis clinic at Guy's Hospital H. J. B. Atkins and P. M. F. Bishop are studying the effects of œstrin, testosterone, and thyrotropic hormone on chronic mastitis which, however, they do not regard as a precancerous condition.

The report also contains the programme of the Campaign's clinical cancer research committee, which has expressed as its ultimate aim "the careful investigation of each and every case of cancer in the country."

MEDICINE AND THE LAW

Sidelights on Professional Secrecy

IN one of his medico-legal essays the late Lord Riddell discussed the possible liability of medical practitioners to a verdict of damages for breach of the duty of professional secrecy, as in cases like Kitson *v.* Playfair. Lord Riddell examined the analogy between the duty of doctor to patient and the duty of banker to customer. In a case last week, where a customer complained that a bank had divulged information about her account to her husband, Lord Justice du Parcq pursued the discussion a little further. A wife's cheque, drawn in favour of her dressmaker for a small sum, was dishonoured. She was naturally annoyed and she told her husband who suggested that she should see the bank manager. She telephoned to the bank in her husband's presence, and her husband took over the telephone and discussed the dishonouring of the cheque. The bank manager then mentioned to the husband that the wife had been drawing cheques on the account in favour of a bookmaker.

The Lord Justice observed that there was no other relationship like that of a husband and wife living together in amity; they could say things to each other which no court would compel either of them to disclose as being statements about the other. Society, he added, still expected a husband to act as his wife's adviser and protector; but there were things about which any bank or professional person bound by professional confidence would know must not be said to one spouse about the other. On the other hand, there were many things which a doctor, for example, would not repeat to anyone else but would not hesitate to repeat to a husband about his wife or vice versa. In the facts of the present case the court considered that the bank manager, having impliedly received a demand for an explanation of what seemed an act of discourtesy, was entitled to give the information explaining the bank's conduct. The bank's interests required disclosure; disclosure in the circumstances could be said to have been made with the implied consent of the customer. Judgment was given for the bank.

The Surgery Tap

If a medical practitioner adds water in making up a bottle of medicine, is he using water for a domestic or for a trade purpose? The Hull corporation made a claim during October in the county court for the sum of 16*s.* 6*d.* for water used by a local doctor in this way. It was contended by the corporation that, under the relevant statute governing its water-supply, the use of water for domestic purposes must not include use for trade or business purposes. In diluting drugs in the form of medicine for a patient the doctor was in effect selling the water. For the defendant it was argued that the tap in the surgery was used for every miscellaneous purpose in the household; only a small quantity of water went into the medicine bottles; this use was clearly subsidiary to the domestic purposes of the household. The judge said that nobody could call it anything but a domestic use if a doctor used the water for washing his hands or his instruments. There were decisions which established that the use of water in the course of making tea or coffee for sale, though possibly to be described as a sale of water, is a use of a domestic nature. In Metropolitan Water Board *v.* Avery water was used by the licensee of a public house for serving luncheons and for washing up plates and dishes. Lord Justice Buckley said that the test whether water is used for domestic purposes is not whether the water is consumed or used in the course of the trade but whether the use of the water is "in its nature domestic." This view was approved by Lord Dunedin later in the House of Lords, and was followed, so far as relevant, in the Oddenino case where water was used in a restaurant for, amongst other things, feeding a tank full of trout, for fire prevention, and for flushing urinals. Manchester Corporation *v.* Buttle is a familiar case on this subject. The corporation had a local Act of 1869 whereof Section 16 enacted that nobody could require the corporation to supply a dwelling-house with water otherwise than by meter or special agreement if part of the house is used for any trade or business. The defendant used part of a house for his professional work as a dentist. Mr. Justice Eve decided in favour of the corporation on the special provisions of the Act, though holding himself bound by the Avery and Oddenino cases to decide against the corporation's contention that the dentist's use was necessarily

non-domestic. In the recent case at Hull the county court judge delivered a reserved judgment last Friday. He held that the Hull corporation was not entitled to charge the doctor at "trade rate." The courts had laid down that, when water is not only being supplied for domestic purposes but is also being supplied for those purposes in the course of a trade or business carried on by the person taking the supply, then the fact that it is supplied for domestic purposes is more important than the fact that it is being used in the course of a trade or business. If, said the judge, the character of the use is domestic, the position is not altered by any increased demand for water consequent upon the existence of a trade or business. He held that the water used by the doctor was in fact used for a domestic purpose; the corporation was therefore not entitled to charge him at a higher rate.

De minimis non curat lex is a sound legal maxim. Although there may be many minims of *aqua pura* in the fluid drachms from the surgery tap, the amount used in the defendant's medicine bottles at Hull was no great matter. In harassing a rate-payer the corporation will so far have spent much more of the rate-payers' money than the sum for which it unsuccessfully sued. But the point may be taken further in the interests of legal principle. The privilege of contributing his name to a leading case is one which a defendant sometimes has thrust upon him.

Criticism of Specialist's Fees

An otherwise ordinary case of running-down injuries attracted attention at Chester assizes through the comments of Mr. Justice Hilbery on the fees included in the injured plaintiff's claim. A 15-year-old girl, earning 10*s*. a week as a domestic servant, was knocked off her bicycle and injured by a motor-lorry. Two serious operations were performed in the Liverpool Royal Infirmary. The plaintiff, as the result of the accident, has a permanent shortening of one leg and will never be able to kneel. The owners of the lorry agreed to settle the claim by paying £2070 which would include the various charges. When the judge was asked to allow the settlement (usually a formal step), he criticised the item of £160 for the two operations. He could not approve a settlement in which charges of this nature were allowed in the case of a domestic servant. There was also a claim by the physician for £50; it was explained that he had attended the girl in Winsford Infirmary, had made 150 visits and had accompanied her to Liverpool. With regard to the surgeon's claim, a letter written by him was read by counsel. The letter pointed out that the case came from Winsford. Every week the surgeon was asked to help in similar cases from Wales, the Midlands, the East Coast, and Scotland. The hospital beds were meant for Liverpool patients; if cases were accepted from outside, there would be no beds for the Liverpool cases; of necessity the outside cases must be dealt with as private or semi-private patients. The surgeon added that he, like others, gave his time and services free to about half his patients. If there was any good reason why this young woman should receive charitable treatment, he would willingly give his services gratuitously. But if those responsible for her treatment were wealthy enough to agree to pay £1500 to her for her incapacity, they were certainly wealthy enough to pay him 100 guineas for his treatment. Without that treatment the girl would have been permanently bedridden and the claim would probably have been from £6000 to £8000. The judge, still not satisfied, remarked that the letter merely meant that the girl was not a hospital patient because she was a poor person with an apparently unanswerable claim against an insurance company. In effect the surgeon was saying that, as the insurance company could well afford to pay the full fee, there was no reason why he should not charge it. Mr. Justice Hilbery suggested that counsel should confer with the parties with regard to the items criticised. The conferences, however, did not succeed in changing the claimants' point of view, and the judge in the end "very reluctantly" agreed to the settlement.

HONOURS IN TROPICAL MEDICINE

On Nov. 23rd Viscount Leverhulme, chairman of the Liverpool School of Tropical Medicine, presented the Mary Kingsley medals at a reception held in the school's museum. The medals were founded in 1904 to commemorate the work of Mary Kingsley, a niece of Charles Kingsley, among the natives in West Africa, and are awarded annually to those—not always scientists—who have furthered the cause of medicine in the tropics. Of the recipients this year one hails from Paris, one from Bonn, one from the United States, and one from this country. In addition an honorary medal was presented to Lady Danson, whose husband, Sir Francis Danson, was chairman of the school until his death in 1926. The attainments of each recipient were set out by Prof. Warrington Yorke.

DR. M. A. BARBER

Seventy years ago Dr. Marshall Albert Barber was born at Crown Point, in India, and if as a child he was tormented by mosquitoes, he has since exacted a full revenge, for during the past quarter of a century he has added much to our knowledge of how best they may be destroyed. Amongst his many contributions to this branch of science there ranks foremost his discovery of the use of "Paris green," an arsenic compound, as an effective and inexpensive means of destroying the larvæ of malaria-carrying mosquitoes. Dr. Barber's long association with the International Health Division of the Rockefeller Foundation has been notable also for his work on the hookworm. During his visit to the Orient in 1915–17 he showed clearly for the first time the part played by malaria and ankylostomiasis in producing the anæmia which is so pronounced a feature of the inhabitants living in districts where these diseases are endemic. At the age of 26 he became professor of bacteriology and pathology at Kansas, and during this period of his career he invented the apparatus with which his name will always be associated, the Barber micro-manipulator. With the aid of this instrument bacteriologists can study the growth of individual minute organisms, and biologists can dissect individual cells, under far higher magnifications than were previously possible.

Dr. Barber is at present working in Mexico and in his absence Prof. Gunn, vice-president of the Rockefeller Foundation, kindly consented to receive the medal for him.

PROF. EMILE BRUMPT

Born in Paris in 1877 Prof. Emile Brumpt studied at the Sorbonne and in the Faculty of Medicine of Paris. In 1907 he was appointed associate professor of parasitology and natural history in the Faculty of Medicine, and in 1919 full professor. After the war he undertook the heavy duties of secretary-general of the Institute of Colonial Medicine of France, which he still carries out with energy, and in 1926 he was appointed director of the School of Malariology of the University of Paris. Prof. Brumpt has published over 350 scientific papers, covering a wide field of investigation. He founded the *Annals of Human and Comparative Parasitology*,

a journal which he has directed from its inception, and his well-known text-book on parasitology, of which the fifth edition has recently appeared, is familiar to students throughout the world.

His is a name to conjure with wherever research in parasitology is in progress. For many years he has been an indefatigable traveller, making meteoric excursions over the surface of the globe. No form of transit is too rapid for him. He may be in China or Peru, on the Amazon or the Euphrates, but wherever he is found he is always the same alert, earnest investigator. He is the personification of the ardent spirit of research, filling each "unforgiving minute with sixty seconds' worth of distance run."

PROF. W. S. PATTON

In Prof. Walter Scott Patton the school honoured a colleague who has worked there for ten years. Patton was born in India in 1876, and, after obtaining his medical degree in Edinburgh and spending some time in post-graduate study in Germany, he joined the Indian Medical Service in 1902 and returned to the land of his birth. Here for twenty years he laboured, adding much to our knowledge of the diseases of that country. The value of his work was early recognised by his appointment as a specialist to investigate the ætiology of kala-azar and oriental sore, and later by his promotion to the directorship of the King Institute of Preventive Medicine in Madras. In 1921 he joined the staff of the University of Edinburgh, but he was not allowed to remain there long for in 1925 the Royal Society selected him as director of their kala-azar commission to Northern China. In 1927 Patton was appointed to the Dutton memorial chair of entomology at Liverpool University. During the ten years in which he has occupied this chair his kindliness and courtesy endeared him to all with whom he came in contact. It was with deep regret that his colleagues learned in December last that he had been compelled to resign owing to ill health. Scattered over the world is an army of students whom he taught with patient care, and a far greater army who know him through his books. These Debretts of the entomological world—it is a comforting thought that if it is not in "Patton" it is not worth while—are, perhaps, not books to be read lightly, but rather with the feeling that

> "Here index learning turns the student pale
> Yet holds the eel of science by the tail."

Prof. Patton was unable to attend to receive the medal in person. He was represented by his wife, who has added much to the interest and scientific value of his numerous publications by her exquisite drawings.

PROF. WERNER SCHULEMANN

Prof. Werner Schulemann was born in Silesia in 1888, and studied medicine and chemistry at the Universities of Freiberg and Breslau. After the war he joined the great German chemical firm of Bayer, and soon rose to the directorship of their laboratories at Elberfeld. There he devoted his remarkable gifts to the synthesis of new chemical compounds which are now widely used as local anæsthetics and soporifics and for a variety of other purposes. Although Schulemann has never visited the tropics, his researches at Elberfeld resulted in a discovery of such importance to tropical medicine that his name is known to all workers in this field. In 1924 he announced that he had succeeded in synthesising a chemical compound which not only acted on the malaria parasite but accomplished what quinine had failed to do, in that it destroyed the stage of the parasite which infects the mosquito. This outstanding achievement attracted world-wide attention and gave a great impetus to the comparatively new science of chemotherapy, the full significance of which is only now beginning to be appreciated.

Beneath a formidable exterior Schulemann hides a genial and kindly nature which has made for him a host of friends in many countries. A man of wide interests and accomplishments, he touches life at many points. He speaks four languages fluently, and has a profound admiration for all that is beautiful. Two years ago he left the firm of Bayer to become professor of pharmacology at Bonn, and at that ancient seat of learning he will endeavour to create a department worthy of the great subject which he adorns.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

PROTEIN IN NEPHRITIS

UNDER the auspices of the Honyman Gillespie trust Dr. J. D. S. Cameron gave a lecture in Edinburgh last week on "Protein in the Treatment of Nephritis." He described Bright's therapeutic recommendations which included the administration of milk and animal food in addition to purgation, venesection, and sedation with opium. Following Bright, physicians prescribed a diet of milk until the first part of the twentieth century when, on the assumption that it rested the kidney, a diet containing very little protein and fluid became fashionable. Dr. Cameron feels that too much attention has been paid to the kidney and too little to the rest of the body whose tissue proteins are lost with resulting malnutrition, anæmia, and diminished resistance to infection. At the same time urea continues to be formed and excreted in undiminished amounts. In normal subjects the ingestion of a non-protein diet is associated with an average urinary excretion of 6·24 grammes of urea a day and a maximum urea concentration of 0·9 per cent.—a figure very close to the maximum possible concentration in some cases of acute nephritis. This provides evidence that protein starvation does not rest the kidney. On the other hand a normal subject on a 50 g. protein diet passes urine with an average urea concentration of 1·1 per cent., on 75 g. 1·2 per cent., on 96 g. 1·8 per cent., and on 120 g. 2·0 per cent. The administration of very high protein diets is not followed by an increase in blood pressure or blood-urea, nor by the appearance of albuminuria or casts in the urine. There is some evidence indeed that such diets actually improve kidney function in normal people in so far as urea clearance is concerned. Diets containing up to 200 g. of protein a day have been used in cases of acute nephritis without exacerbation of the clinical manifestations.

In the treatment of acute nephritis Dr. Cameron starts by giving daily 20 oz. of milk and a pint of a 30 per cent. solution of glucose in water flavoured with fruit juice. He gives eight two-hourly feeds alternately of milk and of the glucose solution. Cream and white cereals are added as soon as possible. The urea concentration range is used to assess the progress of kidney function. When the maximum urea concentration reaches 1·5–2 per cent. 50 g. of protein is provided, at 2·5 per cent. 75 g. is given, at 3 per cent. 95 g., and at 3·5 per cent. or over 120 g. By giving these quantities of protein not only is the local renal state not worsened but the general state of the patient is maintained, infection is resisted, and anæmia avoided.

In the second or hydræmic stage of glomerulo-nephritis death was formerly due to hydræmia and infection directly the result of the protein starvation thought necessary in the presence of albuminuria. Following the work of Epstein on nephrosis, diets containing over 100 g. of protein a day are now used. In this way hypoproteinæmia is overcome, œdema is relieved, anæmia is prevented or cured, and resistance to infection is maintained. No salt restriction is needed. Dr. Cameron believes that a 100 g. protein

diet can easily be consumed by patients with this affection since they can be kept out of bed and living their ordinary lives. The large white kidney may still be with us but the large white man is gone. Dr. Cameron considers the introduction by Epstein of such high protein diets to be the greatest advance in the study and treatment of nephritis since the work of Bright.

In the third or hypertensive and azotæmic stage there is no necessity for a high protein diet since with the development of this stage the nephrotic type of œdema disappears spontaneously, but the necessity for an adequate protein ration remains for the proper nourishment of the patient. The administration of 70–95 g. is not attended by any acceleration of the uræmic termination. At the beginning of this stage 95 g. of protein is given and as the urea concentrating power of the kidney fails this may be reduced to 70 g. but no further reduction is indicated except perhaps in the terminal phase when it is probably more desirable in any case to give the patient whatever he wishes.

Dr. Cameron stressed the importance of giving biologically first-class proteins, of which the animal foods provide the best sources. There is no material difference between red and white meats except that tripe, so often prescribed, is of poor biological value since it contains much gelatin. The high purine meats are to be discouraged.

IRELAND

(FROM OUR OWN CORRESPONDENT)

AIR-RAID PRECAUTIONS

THE Department of Defence has been in consultation with the Free State Medical Union for some weeks past with a view to the coöperation of the Union in regard to the precautions to be taken in view of possible air raids and in the medical treatment of gas casualties. The executive committee of the Union has promised its hearty coöperation. In a letter recently addressed to the Union the Department of Defence states that legislation is being prepared to compel local authorities in certain areas to carry out air-raid precautions schemes. The local authorities will be responsible for arrangements for dealing with casualties, including the organisation of first-aid parties, first-aid posts, casualty clearing stations, hospitals, and ambulance services, also decontamination of the person and clothing of gas casualties. In advance of legislation general plans for the Dublin area are under discussion with the city manager, and steps for the initiation of schemes in the principal towns on the east and south coasts will follow. The medical officers of the local authorities will be intimately concerned in the casualty services in their districts. It is stated further that arrangements should be made for giving instruction in the medical treatment of gas casualties to medical practitioners and students. Courses will be given at the Department's civil anti-gas school at Griffith Barracks, Dublin, and it is hoped that the first course—for some thirty doctors—can be undertaken immediately. It is proposed to discuss with the various university authorities the giving of the necessary instruction to medical students.

The Department of Defence has also been in consultation with representatives of the St. John Ambulance Brigade, which recently organised an intensive course of instruction for its medical officers. The brigade during the past few years has trained many of its members in first-aid methods in regard to gas attacks.

GENERAL MEDICAL COUNCIL

WINTER SESSION, NOV. 22ND–26TH, 1938

DURING the session four names were restored to the Medical Register: James Ebenezer Boon, Ian Duguid, David Gaston, and Hugh Percival Francis Modder. One name was restored to the Dentists Register: that of John Drain.

Referred by the Dental Board

Only one penal case was reported by the Dental Board: that of *Samuel Milnes Buckley*, registered as of 126, Manchester-road, Werneth, Oldham, L.D.S. R.C.S. Eng., 1905. He had been found guilty of false certification in respect of dental letters issued by the Prudential Approved Societies, and his name was erased.

Charges against Medical Practitioners

DRUNKENNESS AND MOTORING OFFENCES

The Council considered seven adjourned and six new cases arising from police-court convictions for drunkenness and motoring offences. In most cases judgment was postponed, subject to the production of testimonials as to conduct and habits.

The name of *William Joseph Doody*, registered as of c/o Mr. Watts, 16, Hope-place, Liverpool, 1, M.B., B.Ch. 1924, N.U. Irel., was erased. Dr. Doody had been summoned before on account of two previous convictions for being drunk. In June, 1938, the Council had decided not to erase his name, and less than three weeks later he had again been drunk and disorderly, resulting in a fine of ten shillings at the City of Liverpool police-court.

The name of *James Wyper*, registered as of 30, St. Michael's-place, Brighton, M.B., Ch.B. 1906, U. Glasg., was also erased. There were two convictions for driving whilst under the influence of drink. Dr. Wyper did not attend and was not represented.

The Case of David Davidson Watson, registered as of c/o Haigh, 21, King-street, Wakefield, M.B., Ch.B. 1926, U. St. And., who had been summoned to appear before the Council on the following charge:—

That you were convicted at the Manchester Assizes commencing on July 4th, 1938, upon indictment of manslaughter and upon indictment of driving a motor-car whilst under the influence of drink, and were sentenced on the first indictment to twenty months' imprisonment in the second division, and on the second indictment to six months' imprisonment in the second division, the sentences to run concurrently, and were disqualified from holding a driving licence for life.

Mr. F. P. Winterbottom, the Council's solicitor, related the facts of the conviction. Respondent, he said, had realised that he was unfit to drive a car after taking a good deal of drink and had arranged with a man to drive him home. A dispute had, however, arisen and the man had refused to go on. Respondent had therefore proceeded himself and had killed a cyclist. His car had been in the centre of the road when the accident happened. Three doctors had formed the opinion that he was unfit to drive a car because of the influence of alcohol. There were two previous convictions for driving while under the influence of drink, and Dr. Watson had appeared before the Council in 1936–37.[1]

Dr. Watson addressed the Council, emphasising that he had pleaded not guilty in the preliminary proceedings, and five minutes before the case was

[1] *Lancet*, 1936, 1, 1316; 1937, 1, 1342.

called at the Assizes his counsel had urged him to plead guilty to manslaughter; he had agreed because, after all, his car had in fact knocked the man down and killed him. He had not been prepared to plead guilty to the charge of being under the influence of drink and would not have done it if he had had time to think. He read some of the evidence given at the trial to show that a cyclist had come out of a side road on his wrong side, forcing respondent to swerve to his wrong side to avoid him. The width of the road there was only 24 feet. He had then corrected his swerve and about 40 yards further on two cyclists had passed in front of him: he had missed the first and hit the back wheel of the second. He pleaded that his failure in the medical tests was due to ankylostomiasis, from which he suffered. He had only had two small whiskies and a glass of beer. The marks on the road and on the car showed that the cyclist had been on his wrong side. He had the promise of medical work when he came out of prison, if he were left on the Register. His offence was free from professional turpitude.

Mr. Winterbottom read letters in favour of respondent from the deceased cyclist's mother and wife, the Mayor of Wigan and others.

The Council directed the erasure of the name.

CONVICTIONS OF MISDEMEANOUR

The Case of Vincent Cachia, registered as of Prince of Wales-road, Sliema, Malta, M.D. U. Rome, 1937.

The Case of Francis Stedman Poole, registered as of 52, Blaby-road, South Wigston, Leicester, M.R.C.S. Eng., 1910, L.R.C.P. Lond., 1910.

Both these practitioners had been convicted in open court of misdemeanour. The cases were heard in camera and erasure followed.

LAX CERTIFICATION

The Case of Augustus Beauchamp Northcote, registered as of 269, Wick-road, Hackney, London, E.9, M.B., C.M. 1888, M.D. 1892, U. Edin., who had been summoned to appear before the Council on the following charge:—

That you were convicted at the Westminster police-court of the following misdemeanour—viz.: On May 17th, 1938, of unlawfully and knowingly making an untrue statement for the purpose of procuring a passport for one Morris Gerlack or Isaac Jacobs at the Passport Office, Westminster, and were fined £17 and £3 3*s.* costs, or twenty-one days' imprisonment.

Dr. Northcote attended and admitted that he had signed the usual passport form and endorsed the back of the photograph. He had attended the family of Isaac Jacobs and, although he did not remember the particular individual very well, he had believed that the person presenting the photograph was in fact the person whom he had attended years before as Isaac Jacobs. He was 75 years of age. After deliberation in camera the President said:

Dr. Northcote: I have to inform you that the Council have given careful consideration to the charge brought against you, and to the evidence produced in support of it. They have found that the facts alleged against you have been proved to their satisfaction, and that the certificate was given by you in a lax and careless manner. The Council regard laxity in the giving of certificates as a grave matter and worthy of censure. Such laxity has in other similar instances resulted in consequences injurious to the State and to the good repute of the medical profession. The Council, however, having regard to the warning which you have received during the course of these proceedings, trust that your conduct will henceforth be beyond reproach; and they have accordingly not seen fit to direct the Registrar to erase your name from the Register.

AN ERASURE FOR ADULTERY

The Case of Peter Gerald Stevenson Davis, registered as of 40, Lullington-garth, Woodside Park, London, N.12, M.R.C.S. Eng., 1917; L.R.C.P. Lond., 1917, who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner: (1) You committed adultery with Minnie Elizabeth Olive Walter, a married woman, of which adultery you were found guilty by the decree of the Probate Divorce and Admiralty Division (Divorce) of the High Court of Justice, dated Feb. 11th, 1938, and made absolute on August 17th, 1938, in the case of Walter *v.* Walter, Davis, and Johnson, in which you were the first co-respondent. (2) You stood in professional relationship with the said Minnie Elizabeth Olive Walter from December, 1925, to 1934, when she left her husband Leslie Walter. (3) You abused your professional position by entering into and maintaining an improper relationship with the said Minnie Elizabeth Olive Walter. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

Dr. Davis attended, accompanied by Mr. Davis, solicitor, of Messrs. Bulcraig and Davis.

Mr. Winterbottom said that the facts were agreed. Respondent and Mrs. Walter had first met when the latter had called at his surgery to inquire about her mother, who was his patient. He had delivered Mrs. Walter of her child in December, 1930. On May 7th, 1934, she had left her husband. Respondent had continued the friendship and after the separation had begun to take her out and call on her in the evenings. At this period the husband had been paying his wife 35*s.* a week and calling once or twice a week to see that she was comfortable. On one occasion at the end of May, 1934, he had called unexpectedly and found the doctor there. During 1936–37 Mr. Walter and a friend had watched Dr. Davis and obtained evidence for a decree.

Mr. Leslie Walter confirmed the date and said that on many occasions up to May, 1934, he had given his wife 3*s.* 6*d.* for each of Dr. Davis's visits and thought it a very low fee. He could not say if the wife had paid the money over. Dr. Davis had never attended him, but he had never known his wife go to any other doctor. He had never seen Dr. Davis until after the separation from his wife.

Dr. Davis said he had never seen Mrs. Walter in his surgery before September, 1930. He had seen her there once only: in 1931 or early 1932. He had never charged her anything. He had never attended her professionally before September, 1930, but she had called on him many times and they had become friendly. The friendship had continued to the present time. He had visited the child once during 1931, and had called on the wife twice only, before June, 1933, at which time he had sold his practice. He absolutely denied the adultery which had been alleged on various dates from 1934 to 1936.

In reply to Mr. H. L. Eason and Dr. J. Bone, he maintained that attendance at and before confinement and examination for tuberculosis did not make her his patient. He never regarded her as a patient. He might do the same thing for his sister and would not then say his sister was his patient. The professional relationship did not, however, depend wholly on the passage of money.

In reply to Sir E. Kaye Le Fleming, he said he did not know whether or not the husband, whom he had not met, believed that Mrs. Walter was his patient at the time of the confinement.

Mrs. M. E. Walter confirmed the account of the relationship given by Dr. Davis. She denied that her

husband had ever given her money for doctor's fees. She had never met the doctor at her mother's house or before she had called at his house to inquire about her mother. She had not consulted any other doctor until this year.

Dr. Davis's name was erased from the Register.

ADULTERY WITHOUT ERASURE

The Case of John Christopher Jones, registered as of 16, Farmcote-road, Glebe, S. Yardley, Birmingham, M.B., Ch.B. 1913, U. Birm., M.R.C.S. Eng., 1914, L.R.C.P. Lond., 1914, who had been summoned to appear before the Council on the following charge :—

That being a registered medical practitioner : (1) You committed adultery with Mrs. Hesba Modena Drusilla Woodman (usually known as Mrs. H. M. D. B. Jones), of 543, Washwood Heath-road, Birmingham, 8, on or about Dec. 17th, 1928, and on or about March 6th, 1934. (2) You stood in professional relationship with the said Mrs. Woodman or Jones at all material times. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

The complainant was Mr. Edward Sydney Jones, who was represented by Mr. A. A. Pereira, counsel, instructed by T. D. Jones and Co., solicitors. Dr. Jones attended, accompanied by Mr. G. D. Roberts, K.C., and Mr. W. A. Macfarlane, counsel, instructed by Messrs. Stoke, Preston for Messrs. Evershed and Tomkinson of Birmingham, solicitors. Complainant requested that the case might be heard in camera. Mr. Roberts objected and the request was refused.

The case outlined by Mr. Pereira was that the respondent in 1922 or 1923 attended in Cornwall a family consisting of Mr. and Mrs. Blamey, their married daughter, Mrs. Puckey, and another daughter then spoken of by her maiden name as her marriage to Mr. Woodman was not known. Mr. Pereira said that the respondent seduced Mrs. Woodman in 1923, some time before the birth of her first child ; he had attended the confinement in 1924 ; on the day of its birth Mr. and Mrs. Woodman had signed a separation agreement. The respondent attended Mrs Woodman at the birth of her second child in August, 1926. The complainant, Mr. E. S. Jones, a friend of the family, while living at Chatham, wrote to the respondent to say that a practice at Chatham was for sale. The respondent moved to Chatham. Later Mrs. Woodman followed him and arrangements were made for her taking a course of dispensing under his tuition. The complainant took a house at Chatham and Mrs. Woodman and her family became his lodgers. He spoke of an alleged assault by the respondent on Mrs. Woodman behind locked doors in this house ; respondent left after a scuffle and went to Australia three days later. He returned in 1931, after 2½ years, and joined his brother in practice in Birmingham. On reaching England he visited Mrs. Woodman at Gillingham. The complainant met him there and blamed him for his previous conduct. Mrs. Woodman and her family moved to Birmingham so that the respondent " could do the right thing by the children." The complainant had paid the expenses and rented the houses ; the respondent had made money payments irregularly for support of the children. Later an agreement was prepared by which respondent accepted responsibility for Mrs. Woodman's three children, then aged 9, 7, and 4 ; he had made no charge for professional services to her and them. A second offence took place on March 4th, 1934, in the dining-room of the house at Birmingham. The respondent had continued to visit the house and to attend the whole family professionally up to the present time.

The complainant, giving evidence in support of counsel's opening statement, described himself as an old family friend, not related to any of the parties. He knew that at Chatham the respondent was paying £1 a week or more to Mrs. Woodman and was trying to persuade her to go abroad with him. He described the incidents in December, 1928, and March, 1934. He spoke of the respondent's visit to Gillingham on his return in 1931 : the doctor had then affirmed his affection for Mrs. Woodman and his willingness to do what was necessary for the children.

In cross-examination the complainant agreed that he was now charging the doctor with two acts of rape, both of which he knew of at the time. He denied sending a messenger in October to say that the charges before the Council would be withdrawn if the doctor would pay up. He denied that the doctor had been pestered at his surgery for money under threats of exposure. He had waited ten years before bringing the charges because the doctor promised to redeem himself. He agreed that there was no mention of the rape in any document or letter. The witness said he moved to Birmingham at the doctor's request, and took a house 150 yards from the surgery also at his request. He denied that he had received money from the doctor, but withdrew the denial on production of a cheque drawn by the doctor and endorsed over to the Birmingham Water Co. ; he also agreed that the doctor had paid a month's rent on his behalf. He identified Mrs. Woodman's handwriting in letters declaring an intention to state the facts to the General Medical Council, but he saw no threat in these. He denied that he and Mrs. Puckey had frequently rung up the doctor to say that Mrs. Woodman was missing and suicidal. In 1937 the doctor had erased the witness's name from his panel ; he had complained to the panel committee of non-attendance, and the complaint had been investigated and dismissed ; he agreed that the clerk to the insurance committee had been informed of the doctor having been pestered for financial assistance. The witness agreed that he had assumed guardianship of Mrs. Woodman's children and had been fined for their non-attendance at school. He denied that he had threatened the doctor's wife, or called at the house and produced the agreement to her.

In answer to the Legal Assessor, the complainant said that the doctor was the father of Mrs. Woodman's three children ; the information on the birth certificates was untrue. Asked why he allowed Mrs. Woodman to follow the doctor to Chatham, he said he thought this would be to her advantage. He was anxious to protect her from him, especially after the alleged rape in 1928 ; yet he applied for a transfer of employment to Birmingham for himself and he arranged for Mrs. Woodman to come and live in the same house there. " You think," he was asked, " that to protect her from him, the best way is to take her as near as possible to him ? " The witness made no reply.

Mr. Pereira then informed the Council that he was instructed not to call Mrs. Woodman unless her evidence were taken in camera and unless she was referred to as " Mrs. Jones." Mr. Roberts renewed his objection to the case being heard in camera, and the request for such hearing was refused.

The respondent doctor, examined by Mr. Roberts, said he did not remember attending Mrs. Woodman before the birth of her second child in 1926 ; he had met her while attending Mrs. Puckey's confinement in 1925. He admitted intimacy in 1926. He discussed the position with his wife and got into touch with the

Chatham practice through a medical agency. He had not then heard of the respondent. Mrs. Woodman had written to him that she could not stay in Cornwall any longer as her pregnancy would be obvious to her husband. He offered to pay for a course of dispensing for her; meanwhile she met the complainant. The witness agreed that Mrs. Woodman said he was the father of her child; he had not thought it possible. He wanted to do what he could to right any wrong he had done and to avoid publicity and action before the Council. There had been no affiliation proceedings. He was busy at Chatham with four surgeries and 30 to 40 calls daily. Mrs. Woodman came to the surgery almost every day to demand money. The worry made him ill and he decided to go to Australia, leaving his wife and family till he could build up a home for them. He had never heard of the accusation of rape until the present proceedings. He described his payments to Mrs. Woodman. She told him, after his return, that she had the chance of a good job in London, but felt she could not take it unless he was prepared to formalise the payments, in case anything happened to her. After long argument he signed the agreement. He gave his account of the incident on March 6th, 1934. He had repeated telephone calls that Mrs. Woodman had gone away and was believed to be about to commit suicide. He was begged to go to the house. He went and was told by Mrs. Puckey that the complainant had found her at the railway station behaving wildly. He himself had been terribly upset with visions of her suicide and the consequent opprobrium. He was terribly relieved to see her alive and in his relief he embraced her. This was after 10 P.M.; there was no truth in the story of the rape at mid-day. His payments and Mrs. Puckey's visits to his surgery continued. Behind all the payments was the suggestion that they were saving him from the G.M.C. As lately as Oct. 4th Mrs. Puckey had told him that the complaint would be withdrawn if he would resume his payments of 30*s.* a week.

Cross-examined by Mr. Pereira, the respondent admitted that he had attended the whole family professionally until recently. His paternity in respect of the three children had never been alleged until 1934 and was a lie. He had not been infatuated with Mrs. Woodman nor had he wanted her to go away with him. At Gillingham he had once suggested, as a jest, that she should go to Australia. He was then booked to go in three days' time as a ship's officer and could not possibly have taken her with him. On return from Australia he went back to his wife and family. Answering the Legal Assessor, the respondent said he could only be the father of the third child, and that was extremely unlikely; he had been afraid of the demands for money because of the wrong he had done her in October, 1926. He admitted intimacy with her in 1934 while acting as her doctor.

The President announced that the following facts had been proved to the satisfaction of the Council:—that Dr. Jones had committed adultery with Mrs. Woodman at 543, Washwood Heath-road on or about March 6th, 1934, and that he had stood in professional relationship with her at that time. In respect of the facts so proved, he had been adjudged guilty of infamous conduct in a professional respect. The Council did not, however, direct the registrar to erase his name.

THE Lord Chancellor has added the name of Mr. Gerald S. Hughes, M.B. Lond., F.R.C.S., to the commission of the peace for the city of York.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 19TH, 1938

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2072; diphtheria, 1530; enteric fever, 31 (31 "expected"); pneumonia (primary or influenzal), 723; puerperal pyrexia, 187; cerebro-spinal fever, 15; acute poliomyelitis, 45; acute polio-encephalitis, 2; encephalitis lethargica, 5; dysentery, 42; ophthalmia neonatorum, 69. No case of cholera, plague, or typhus fever was notified during the week.

The combined notifications of acute poliomyelitis and acute polio-encephalitis total as follows for the current week and the previous 17 weeks (working backwards): 47, 53, 73, 74, 88, 85, 68, 56, 63, 83, 76, 82, 76, 83, 87, 63, 41, 29.

The number of cases in the Infectious Hospitals of the London County Council on Nov. 25th was 3147, which included: Scarlet fever, 803; diphtheria, 1078 (carriers, 23); measles, 12; whooping-cough, 363; puerperal fever, 20 mothers (plus 12 babies); encephalitis lethargica, 273; poliomyelitis, 15. At St. Margaret's Hospital there were 25 babies (plus 10 mothers) with ophthalmia neonatorum.

Deaths.—In 126 great towns, including London, there was no death from small-pox or measles, 3 (2) from enteric fever, 1 (1) from scarlet fever, 8 (3) from whooping-cough, 22 (3) from diphtheria, 40 (8) from diarrhœa and enteritis under two years, and 21 (1) from influenza. The figures in parentheses are those for London itself.

Wolverhampton reported the only death from typhoid outside London. Fatal cases of diphtheria were scattered over 19 great towns, 2 at Hull, no more than 1 elsewhere. Liverpool had 7 deaths from diarrhœa, Birmingham 5, Newcastle-on-Tyne 3.

The number of stillbirths notified during the week was 273 (corresponding to a rate of 41 per 1000 total births), including 30 in London.

THE FISH-BONE IN THE THROAT

GONE, it seems, are those carefree days when the patient with a fish-bone in his throat could be cursorily dispatched with a box of chlorate of potash tablets described reassuringly, if optimistically, as "bone-dissolving medicine." Writing in the October issue of the *West London Medical Journal*, Mr. Michael Vlasto emphasises the dangers of such treatment. The patient with a fish-bone impacted in his gullet is a potential candidate for perforation, mediastinitis, and death and should be subjected to endoscopy and radiography. Such thorough measures, however, entail loss of time, expense, discomfort, and a not negligible risk to the patient. Obviously, therefore, they should not be undertaken unless it is reasonably probable that the foreign body is still present. Vlasto thinks that as a rule it is possible on clinical evidence alone to decide whether further investigation is warranted or not, and he describes two hypothetical cases to illustrate the differential diagnosis. In the first a fish-bone is probably present and in the second it is probably not.

(*a*) A workman wearing a denture was eating some hake yesterday at supper. He suddenly felt a tearing pain in the throat, which has persisted, if not increased, ever since. The pain is increased during an attempt to swallow, and the meal is regurgitated. The man looks tired and ill and has a frightened and anxious expression. He points to a spot of maximal pain over the side of the neck and winces when this is touched. He tends to keep his neck rigid, and a forcible attempt to bend the neck over to the right is resisted.

(*b*) A lady of fashion with a perfect set of teeth was eating a herring at breakfast an hour ago: "A bone stuck in her throat and is still there." She cracks a joke about it having been a pity to abandon a perfectly good herring. Her hand is passed vaguely over the neck region, and she is unable to find one spot which is more tender than another. She can bend her neck freely in every direction.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

FROM AN ANATOMIST.—I

ONE of the wisest old men I have ever met was a physician. As a physician he might have been considered, I suppose, to bridge the gap between the old doctor and the newer clinician; for though he was well up to date in all modern methods of medicine, his instincts were those of the older generation of bedside, as opposed to laboratory, workers. A vast amount of time, which could have been devoted with far more lucrative results to his practice, he gave to the instruction of medical students. He was regarded with veneration by those among them who were sufficiently intelligent to appreciate his teaching and with great awe by those who feared his gentle, but very caustic, comments on their crudities. Of students as a class, he once remarked to me: "They are such strange creatures. Sometimes, I like them so much, and at others I hate them." Just then, I think, he hated them. It was his way to attempt to make every student think for himself and rely on his own senses in coming to a diagnosis. At a bedside clinic he had been telling his class that the heart sounds had been variously interpreted at different periods in the history of auscultation. "Now," he said, "I want you all to make up your minds about it. Is it 'lub dup pause' or 'dub lup pause'? Just listen to as many hearts as you are able to examine—listen to your own—and tell me, any time, just what you think it is." It happened that one member of the class spent that evening in an injudicious manner and, arriving at his lodgings early in the morning, thought of the heart sounds. He listened with some intentness to the beating of his own heart and then, at 2 A.M., rang up the physician and said: "It's 'dub dup pause' you silly old fool." I fancy this incident was one of the reasons why, at that particular time, the old physician disliked medical students. But I suppose that every teacher who has spent long years in a medical school has passed through the same alternating phases of regard for the youths with whom he has to deal. Such alternations of like and dislike are merely minor waves superimposed upon the gradual curve of long familiarity. Each generation of students produces its own reaction upon the teacher and makes his teaching a labour of love or reduces it to the monotony of a necessary routine.

I once heard the headmaster of a school, situated somewhere in the British overseas dominions, explain to a scholar that a particular tree looked somewhat like its neighbour, because it was, in fact, "The same specie, but a different genus." (I wonder why "species" is so often transformed to "specie" in that particular land.) But the headmaster's diagnosis might be applied, with alterations, to medical students: all belong to one genus, but every "year" contains a number of different species. It is the quality and quantity of the divergent species present in any particular year that makes teaching a delight or a drudgery. In only one factor is the medical student in any way a standardised product, and in this he is like the policeman: under normal circumstances he starts his career at a definite age. It is in this very matter that the teacher must, from time to time, take stock of his opinions and of his criticisms and prejudices; for whilst his students are Peter Pans, he is for ever growing away from them. This is the long low curve of change of regard upon which are superimposed the little minor jumps of the influence of species-composition of the years.

* * *

Looking back on over thirty years of this business of teaching medical students in various schools in different parts of the world, I am still in doubt as to the answer to the question: "Is the type of medical student changing and, if so, is it for better or worse?" Although I cannot answer this question in any dogmatic fashion, I know quite well where definite answers may be obtained. It has, on three occasions, fallen to my lot to have, as senior technician, a man who had spent over forty years in the same department of a medical school. All three were of very different types. Their views on politics, religion, and other things were strangely divergent—but in one thing their opinion was the same; they all agreed that the medical student had steadily degenerated in their time. They were unanimous in the opinion that the medical student of their early memories was a gentleman, whereas the present-day representative was something rather different. They were not in perfect agreement as to what constituted the gentility of former generations. One was inclined to find evidence in the fact that the medical student of the old school drank considerably more, another that he was far more liberal with tips, and the third that he both dressed and behaved with more dignity. The one attribute upon which all were agreed was that the medical student of the past was far older, more mature, and more responsible than his representative to-day.

* * *

This opinion is undoubtedly to be explained by the theory of relativity. It is merely a repetition of the conviction of the elderly that policemen are becoming more boyish every year. Now I flatter myself, perhaps with little real justification, that I have emancipated myself from this fallacy into which I assume my technicians to have become ensnared. I am quite prepared to admit that it is I who have changed and not the green lane of my love or even the medical student. The medical student, as he comes to me to-day, is of the same age and, therefore, probably of the same degree of maturity as was his prototype more than thirty years ago. Social maturity at any given age has varied in different historical periods. The age of, say, twenty carries a very different connotation from that which was associated with it in Elizabethan times. Even within much narrower time limits, the degree of responsibility expected from a youth of twenty has varied very widely. Within the span of 30 odd years or so during which I have taught medical students, it is quite possible that the age at which youth is reckoned as being more or less irresponsible has been advanced. It is quite likely that in 1938 we do not expect a youth of twenty to be so grown-up as we did in 1898. But I fancy that the difference is not so great as my senior technician would have me believe. It is true that he can bring to his support photographs of the final-year medical students of forty years ago, and show me a curious group of men adorned with beards and whiskers and wearing strange hats. He can show me these impressive groups and ask me if our final year, in this current academic year, will show such matured and hirsute men of the world.

The answer to this question is difficult, under the circumstances, but I imagine that our present-day medical students could grow whiskers in their final year if fashion dictated the business. If I were definitely asked if the medical student is less self-reliant and less maturely developed in his outlook than those of my earliest acquaintance, I fancy I should have to own that, in some ways, his convictions, his rules of conduct, and his philosophy are less deep-seated and more unstable than those of former generations. But this applies, I think, to all young people and to most elderly ones—of our particular period. We are all upset in philosophy; we are all on an uncharted sea of modern ethics and modern loosening of religious inhibitions. We cannot blame the medical student if he is in the same boat with us and if he feels that the mariner's compass of pre-war days is not the reliable instrument it used to be.

* * *

I fancy there is one real factor that has helped to create the impression, in the minds of my technical assistants, that the medical student of to-day is less mature than his predecessor of forty years ago. The students of, say, the second year are all about the same age to-day. There may be an odd one or two entering at a later age than is usual; but with these exceptions we can assume that all have matriculated at about the same age and that, in their second year, this uniformity is maintained within a narrow margin of error caused by failures in the first year. But forty years ago this was not the case. Many of us, who were students at that time, must remember men who were "out of their year" while still sitting for the first or second year examinations of their medical course. There were men, and many of them, in most schools who had been there five years or more without passing their preclinical examinations. This was the whole army of "chronics"; men who regarded the medical schools as their clubs. For the most part they were an interesting set of men who rarely sat for examinations and far more rarely passed them. These were the mature men who linger in the memories of my technical assistants. These were the men who would give good tips in order to be signed up for work they had not done and who had more money to spend and more discrimination to exercise on alcoholic refreshment. But the chronic is, in most schools, as dead as the dodo, and, save for sentimental memories, no one can deplore his extinction. Competition is too keen to-day and facilities are too limited to permit the chronic to occupy a place in most medical schools. Forty years ago he was admired by the younger students, respected by the attendants, and courted by the captains of teams—until he was "out of his year." To-day he is ignominiously reported to the governing body as a "repeated failure" and passed out of the school to make room for a more seriously minded student. It would be of interest to-day to establish what might be termed "the chronics' record." The subject might afford the basis for a competition among the more elderly readers of THE LANCET, and I will not prejudice the issue by giving instances of long tenure of studentship that have come under my personal observation. But I would like to record the fact that, when a demonstrator in one of the London schools, I had the distinction of turning a real chronic into a keen student of medicine. This man appeared to have no interest in any subject embraced within the medical curriculum, but it chanced that one day he was curious about a matter he had read of in the morning papers. I told him that the case was by no means an isolated one and that if he cared to look up the matter in Gould and Pyle's "Anomalies and Curiosities of Medicine" he would find others more remarkable. No copy of the book was available in the library of the school, but, undaunted, he searched the Charing Cross-road until he found and purchased a second-hand copy. He read the book with avidity, decided that medicine was a vastly interesting subject, and he never looked back, but became a keen student and graduated with some distinction. It is rather humiliating to confess that the subject that excited his interest and led to his conversion was certainly a curious, but by no means a very elevating, one. This student taught me a lesson and, although I know well that no one may pass on experience to others, nevertheless, I would advise any young man taking up the teaching of any subject as a profession that it is only a question of exciting the interest of a student that matters. All else will follow.

One other lesson I learned early about the medical student. In my first post as an unpaid junior demonstrator—an office which, as I was informed by the Warden, entailed my wearing a frock coat and silk hat—I learned that, though I might be somewhat better informed about my subject than were the students assigned to me, there were situations in which I should cut a poor, or even ridiculous, figure if set in competition with my students. I soon subscribed to the creed, to which I have ever held, that no student is altogether and under all circumstances a fool. I might be able to make him look foolish in an oral examination in anatomy; but in some circumstance of life I knew very well that he could make me look even more ridiculous. I therefore began, perhaps earlier in my career than some teachers, to consider that my slightly greater knowledge in one subject gave me little warrant for assuming any general superiority to the average medical student. I came to believe that no medical student was an all-round fool; but in one school I came near to reversing my opinion. It was my lot to have in my class a man whose knowledge of his subject was at the very lowest ebb. He looked foolish and he was foolish. He played no games; he had no ostensible method of wasting his time. He did not drink. He appeared to have no vices. Apparently there was no channel in which, vicariously, his talents ran to waste. He, I decided at last, was what I have believed did not exist—an all-round fool who was a student of medicine. It happened that a ward entertainment was announced; a distinguished entertainer was coming to the hospital to spend an hour in relieving the monotony of the patients in the wards. Staff and students gathered in the ward. There was a long expectant period of waiting and then a telegram announcing that the celebrity could not fulfil the engagement. Could any one do anything? The patients were anxiously awaiting an entertainment. I could not even play the piano. No member of the staff seemed to be able to step into the breach—and then my student said very modestly that perhaps the patients would like a little conjuring. Without more ado he proceeded to produce half-crowns from the nose of an elderly Semitic diabetic; he made the ace of hearts appear miraculously on the pillow of a dazed young lady suffering from anæmia. For an hour he held the ward spellbound and charmed, whilst I looked on admiring. My creed was not shown false, and, after thirty years experience as a teacher, it is still my creed. I hope I shall never conduct an oral examination without remembering that the student whose ignorance seemed to me to be contemptible could make me look very foolish in some other field of human activity.

CORRESPONDENCE

THE "IRON LUNG"

To the Editor of THE LANCET

SIR,—I think medical and lay men alike will have rejoiced at the munificent and magnificent offer of Lord Nuffield to present a respirator to any hospital in the British Empire desiring one. Sufferers from anterior-poliomyelitis with severe respiratory failure are inevitably doomed unless access to such an apparatus is available. A year's almost continuous experience with the Drinker respirator has, however, taught me lessons which I feel should be passed on to medical colleagues, who, hitherto unacquainted with its employment, may welcome certain suggestions.

I have treated five cases at the Treloar Cripples' Hospital since October, 1937. They may be summarised as follows:—

CASE 1.—Placed in Drinker, Oct. 24th, 1937; removed Dec. 9th. In respirator 47 days.
CASE 2.—Placed in Drinker, July 25th, 1938; removed August 8th. In respirator 14 days.
CASE 3.—Placed in Drinker, August 14th, 1938; died August 16th. In respirator 2 days.
CASE 4.—Placed in Drinker, August 16th, 1938; removed Sept. 22nd. In respirator 37 days.
CASE 5.—Placed in Drinker, Sept. 26th, 1938; removed Oct. 26th. In respirator 30 days.

Thus of five patients who would all have died had the respirator not been available, four survived. They are now convalescent, their respiratory muscles are functioning satisfactorily and they all are likely to recover so fully as not to be seriously crippled. They should be able to lead the life of the normal child and become useful citizens.

The fatal case was not admitted until twelve days after the clinical onset of the disease. On admission four days after commencement of paralysis the boy was comatose and severely cyanosed, all respiratory muscles being affected. He had complete flaccid paralysis of his left side involving both face and limbs. He was placed in the Drinker at once, but though he survived two days he did not recover, nor was he able to speak while with us. He died on August 16th and the Drinker he occupied was immediately utilised for another child whose death would otherwise have been inevitable.

The recovery of the other cases can only be described as dramatic—indeed I know of nothing more remarkable—and Lord Nuffield will have the reward of knowing that by his generous and timely action many lives are likely to be saved where otherwise a speedily fatal result could not have been prevented. I cannot here describe the cases in full, but more important are the conclusions arrived at and I hope I shall not be deemed ungracious in mentioning these.

The Drinker apparatus will not save life unless worked by personnel (medical and nursing) skilled in its use, and instruction in its use and the avoidance or treatment of complications should be given to those who will employ it; otherwise disappointment and fatalities are certain to occur. Even if the initial difficulties are overcome much precious time will be lost unless proper orthopædic treatment and nursing is available. While we must try to save life that life loses much of its value if the subject is left helpless and paralysed, as I have been credibly informed many have. At least three skilled nurses during each twenty-four hours are desirable in the acute stages of the disease. Also available should be an orthopædic surgeon or a general surgeon skilled in orthopædics, an instrument-maker, and a mechanic who can be entrusted with the care of the apparatus.

The respirator should be maintained in perfect working order when not in use, for it may be required without previous warning at any moment of the day or night. As it is to be used by a patient who is presumably infectious it must be kept isolated in a well-aired room and precautions to prevent spread of infection must be observed.

In the early stages of anterior-poliomyelitis cases are often sent to isolation hospitals where many of the desiderata enumerated are not available, and the same would apply to many of the smaller hospitals. While, therefore, Lord Nuffield's splendid ideal deserves and receives our enthusiastic and grateful approval it is to be hoped that in the distribution of the respirators so generously offered gratuitously the facts I have ventured to mention should not be overlooked and I hope they will receive the consideration of the Nuffield trustees. I feel impelled to call attention to these matters after some experience of the Drinker, to avoid disappointment which will follow unless these facts are generally realised. One more point may be mentioned: the present epidemic seems to be peculiar in the unusual number of cases of respiratory distress, and I fear no man may safely predict whether this feature will increase or diminish in the future.

In one thing I feel we are all unanimous, a sense of deep gratitude to Lord Nuffield for generous and spontaneous help in a matter which was otherwise placing all hospitals in a very terrible and in most cases an apparently insoluble difficulty. A very carefully thought-out service of these respirators appears to be eminently desirable.

I am, Sir, yours faithfully,

H. J. GAUVAIN.

Alton Park, Alton, Hants, Nov. 28th.

MEDICAL MOBILISATION

To the Editor of THE LANCET

SIR,—I have read with great interest the leading article on medical mobilisation in your issue of Nov. 19th. I have for some time been urging that the medical problem likely to arise as a result of air raids in this country could not be efficiently met by a service such as now exists, and which I have described, and still hold to my description, as "an ill-defined, uncertain voluntary service, almost parochial in character, without rank, uniform or disciplinary powers." In the first place, such a service does not envisage the use of doctors in the first-aid posts. I hold that medical aid must be available at these posts not only to give the public a sense of security and prevent panic but also to relieve the hospitals of an enormous amount of minor surgery during a time when they will be fully engaged with major surgical work.

One is astounded to learn that those of us who have to provide for the treatment of casualties amongst the population of large and densely populated industrial areas must look for our medical personnel amongst what is left after the Army, the Navy, and the Air Force have had their pick. The magnitude of the civil medical side of A.R.P. does not seem to be appreciated. In your leader you have clearly pointed out that the problem is an entirely different one from that of the last war, when the civil population were not seriously exposed to danger. As Earl Baldwin pointed out in a speech in the House of Lords after the crisis, there would this time have

been tens of thousands of serious casualties amongst the civil population before a single sailor or soldier had been asked to give his life; and it is to meet this enormous civil medical problem that we are told we must take what is available after the fighting services have had their pick! The fighting services each have, rightly, a medical corps; there should likewise be a civilian medical corps. I have suggested elsewhere that what is required is a civilian counterpart to the Royal Army Medical Corps, and I suggest that it should be called the "Air Raid Medical Corps" and should be built up on the lines of the Territorial Army—i.e., it should be a uniformed corps, with rank, local training depôts, and a similar system of enlistment, pay, and allowances to that of the Territorial Army. The selection of recruits should be made with at least equal care to that exercised by the Territorial Army and it is essential that this corps should be formed in times of peace, just as the medical corps of the fighting services are, and that the corps should have prior call on its members in war-time. In peace-time there need be no more interruption of the work of the medical men in their ordinary practices than there is in the work of those who join the Territorial Army. Civil casualties in many cases will be women, and, therefore, the corps should have women in all its ranks.

The advantage of this sytem is that it is founded on the basis of the R.A.M.C. and Territorial Army which have been well tried and proved efficient. Without some such service as this volunteers that are being trained now will be difficult to hold together. I can see no difficulty in forming an Air Raid Medical Corps on these lines. In war-time such a corps would provide for the civil population medical and ancillary services required inside and outside hospitals. It would also provide a nucleus of trained (but non-medical) first-aid personnel as standing crews for the first-aid posts, but in addition it would be expected on short call to provide from the local depôts, where equipment would be stored, what I have described elsewhere as "surgical flying squads." Without some such system medical men will have to be stationed at posts or hospitals where their services may not be required. If there is to be a shortage of medical personnel, some system must be arranged by which those that are available will be where they are wanted, and that means having mobile units—and a highly disciplined corps.

I have mentioned this idea to many medical men and all seem to welcome it. They complain that in the recent crisis they had volunteered their services but were never informed how, when, or where they would be required.

I am, Sir, yours faithfully,

W. M. ASH,

Nov. 25th. Medical Officer of Health for Derbyshire.

CONVULSIVE TREATMENT OF EPILEPSY

To the Editor of THE LANCET

SIR,—I have noticed with the administration of Cardiazol (and no doubt it also occurs with triazol) that after a number of injections the patient needs larger doses than at first to produce a convulsion. It has occurred to me that this might be useful in the treatment of epilepsy. Whether epilepsy is due to a focus of cortical sensitisation which is always ready to explode into a fit or whether it is due to the circulation of epileptogenic substances is not definitely proved, but if it is possible to raise the "epileptic threshold" by the injection of cardiazol in neurotic and psychotic subjects it seems reasonable to suppose that it might be possible to do so also in the case of idiopathic epilepsy by the same means. Moreover after a patient has had a fit he frequently goes a more or less regular period—perhaps a week or a month—before he has another. If one can substitute an artificial fit at a convenient time in private it would save the distress of a convulsion occurring inconveniently in public.

I have tried to obtain suitable subjects—i.e., those with more or less regular convulsions occurring at short intervals—upon which one might see if these deductions are correct, but unfortunately the psychiatrist is less likely to meet such cases than the neurologist. It is with the hope that some neurologist might feel it worth while trying this suggestion that this letter has been written. Naturally if anyone would like to do so I should be glad to coöperate with him if he would permit me.

I am, Sir, yours faithfully,

Wimpole-street, W., Nov. 24th. CLIFFORD ALLEN.

RADIOLOGY AND OBSTETRICS

To the Editor of THE LANCET

SIR,—I observe that at the end of your report on Dr. Moloy's interesting paper read before the section of obstetrics of the Royal Society of Medicine (THE LANCET, Oct. 29th, p. 998), there is a complaint by Mr. Aleck Bourne, the president of the section, against what he calls "mechanistic medicine." You published a letter from him on this subject in July, and I feel that some comment on this attitude is warranted.

Under the heading Trial Labour he wrote: "Trial labour is actually a confession of the continued failure to diagnose the presence of disproportion at full term," and later "I fear that some of the younger obstetricians, fascinated by the exactitude of measurement, are thinking again in terms of mechanics . . . the incursion of the radiologist into this aspect of obstetrics is a retrograde movement." The first statement is painfully true! Why, then, is he sorry that younger obstetricians now demand knowledge of the mechanical factors involved, and are not prepared to rely upon the known uncertainty of clinical judgment? It is true that he mentions only pelvimetry, but those same younger enthusiasts require also of their radiologist the diameter of the fœtal head.

Statistics of cases of trial labour have been given, showing, with triumph, that "only 6 per cent." have required rescue by Cæsarean section. What a pathetic confirmation of this "continued failure to diagnose disproportion"! One is sorry for that "only 6 per cent." whose lives were risked, and who suffered so unnecessarily. The radiologist could have shown that in the great majority of these cases there was no cause for anxiety at all, that a few were clear cases for Cæsarean section, and that the remainder would have been treated more safely by induction a week or two earlier. Pace Mr. Bourne, induction *based on radiography* will not be abandoned; it is just beginning. A large proportion of cases submitted to Cæsarean section in this country as a whole could be shown by X ray examination to be capable of spontaneous delivery at term. The most skilled clinician simply cannot compete with the precision of the information which can be given by those radiologists who have studied the problem.

Mr. Bourne attaches more importance to the functional capacity of the uterus, but this question does not arise. One is asking simply, is it of value to *know* the relative size of head and pelvis? The risk of inertia can be accepted if one *knows* there is no

unreasonable degree of disparity. Are we to believe that Mr. Bourne would prefer not to know?

I am, Sir, yours faithfully,

Bexhill-on-Sea, Nov. 22nd. NORMAN REECE.

TREATMENT OF TRIGEMINAL NEURALGIA

To the Editor of THE LANCET

SIR,—I was much interested in Dr. Stephen Rosenak's article on procaine injection in the treatment of herpes, published in your issue of Nov. 5th. For some years past I also have been using this treatment, especially in cases of trigeminal neuralgia, and I have a series of cases where the results have been extremely satisfactory. In trigeminal neuralgia I use the technique suggested by Wilfred Harris to approach the Gasserian ganglion. A small bleb of skin is first anæsthetised with Novocain and then a needle is gradually introduced towards the foramen ovale and Proctocaine is injected drop by drop. As a rule 1 c.cm. has been used. The patient has an immediate anæsthesia of the affected side and the pain has been relieved. No untoward results have followed this treatment. Relief of pain has lasted in some cases since 1936 and in others one or two reinjections at long intervals have been made. This method seems less drastic than alcohol; I have done it in the out-patient department and the patients have gone home after a short rest with no untoward results. The following case has a typical history.

Mrs. A, admitted in March, 1936, with severe pain over the right side of the face, had had a similar attack in 1933. Pain was continuous day and night; the patient was unable to talk or take food, either fluids or solids causing a spasm. The pain lasted only a few seconds but was frequent. On examination the patient exhibited the characteristic paroxysmal attacks of trigeminal neuralgia with spasmodic contracture of the facial muscles. The skin was tender and slightly hyperæmic. There was no lacrimation. The treatment was given on March 7th, 1936; immediate relief followed, the patient being able to talk and take fluids. During the following fortnight she had occasional attacks of pain which gradually became more frequent and severe. On March 21st, therefore, a second injection was given. Marked and immediate relief of pain was experienced. I have seen this patient at regular intervals since and she is still free from pain.

I have also a case of severe post-herpetic pain of some years' duration in which Mr. Holmes Sellors kindly injected the intervertebral ganglia with proctocaine some three years ago. The pain was markedly diminished and although there is still some discomfort the general condition has been greatly improved.

From my experience it seems that, once the technique of injection has been learnt, this easy method of treatment for these extremely painful conditions offers a rapid, safe, and sure relief.

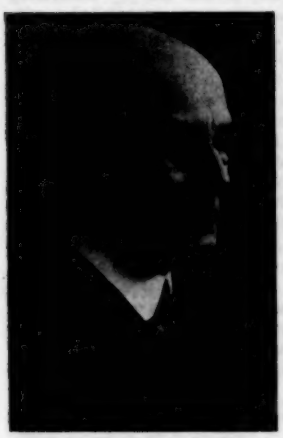
I am, Sir, yours faithfully,

Harley-street, W., Nov. 29th. GERALD SLOT.

OBITUARY

ARTHUR GEOFFREY BATE, M.B. Camb., F.R.C.S.E.

Mr. Geoffrey Bate, who died on Nov. 24th at Hove, was born in Clapham in 1874, the son of the Rev. George Osborn Bate. He received his early education at the Leys School, Cambridge, and after a year in Canada went to King's College, Cambridge, as a choral scholar. In 1897 he gained first-class honours in the natural sciences tripos, Part I. From Cambridge he went to St. Mary's Hospital, where he took his M.B. in 1903, and after holding resident appointments there he became house surgeon at the Royal Sussex County Hospital, Brighton, a post which he held for three years. In 1907 he took his F.R.C.S. at Edinburgh and went into practice in Hove, where his surgical skill brought him an increasingly large connexion and a multiplicity of hospital appointments. At one time or another he was honorary surgeon to the Royal Sussex County Hospital, the Hove General Hospital, the Royal Alexandra Hospital for Sick Children, Brighton, the King Edward VII Hospital, Haywards Heath, the Crowborough War Memorial Hospital, and the Crawley Cottage Hospital. He was also surgeon to Brighton College, Brighton Borough Mental Hospital, and to the Brighton Borough Infirmary. He served throughout the war as Captain R.A.M.C.(T.) at the 2nd Eastern General Hospital. For three years he was honorary secretary and in 1928–29 president of the Brighton and Sussex Medico-Chirurgical Society, and he contributed extensively to its transactions.



[*Nunn, Brighton*

Geoffrey Bate was a natural surgeon, rapid and deft as an operator and a sound diagnostician. He had many interests outside his profession and everything he did he did with all his might. He had an inborn bent for mechanics, was one of the earliest motor-cyclists, and knew the anatomy of a motor-car as thoroughly as that of the human body. Gifted with a fine light tenor voice and a talented musician, his services as vocalist, pianist, or organist were in great demand and were freely given. For some years up to his death he was president of the Brighton and Hove amateur operatic society, in which capacity he received valuable help from his wife. Freemasonry, Rotary, and photography filled up what little spare time he had left. All his life he loved dogs, his companions varying from great danes and bulldogs to cocker spaniels and Aberdeen terriers. In early days a fine lacrosse and hockey player and a wicket-keeper of no mean skill, he was a keen supporter of the Sussex county cricket club, and of the Brighton and Hove Albion football club, to which he was for many years honorary surgeon. Three years ago there came an attack of coronary thrombosis. Although he ultimately made a good recovery, he was compelled to curtail his activities and particularly, to his great regret, to sever his active connexion with the Royal Sussex County Hospital. During this latter period he concentrated upon compensation and other legal cases, a branch of practice for which his long experience, clear judgment, and unbiased mind made him peculiarly fitted. His death followed a second coronary thrombosis. He leaves a widow and three daughters.

BENNO CHAJES, M.D.

Prof. Chajes, who died while on holiday in Switzerand on Oct. 3rd, was born at Danzig in 1880 and graduated in medicine at Freiburg-im-Breisgau in 1903. He was assistant successively to Senator, Blaschko, and Goldschmidt in Berlin and then to Sabouraud in Paris. His experience with occupational skin diseases led him to interest himself in industrial and social hygiene, and after the war he became a member of the consulting committee at the International Labour Office. While practising as a dermatologist in Berlin he wrote extensively on a variety of subjects—internal medicine, dermatology, venereal diseases, school and industrial hygiene, and the like. His "Compendium of Social Hygiene" has been translated into several languages and in Russia and Japan is used as the official teaching manual. For some years he edited the *Zeitschrift für Schulgesundheitspflege und Soziale Hygiene*, the *Zentralblatt für Gewerbehygiene und Unfallverhütung*, and other journals. From 1928 to 1933 he was a member of the Prussian Landesgesundheitsrat and of the Reichsgesundheitsrat, and he was also a member of the Prussian Parliament, where he acted as Government expert on questions of medical administration. In 1931 he was appointed professor of the medical faculty at Berlin University and director of the seminar for social hygiene. Being a Jew he was dismissed from all his German appointments in 1933. Since then he has worked at Tel-Aviv in Palestine, where he founded and directed the centre for social and industrial hygiene in connexion with the general federation of Jewish labour. During his five years in Palestine, apart from his work as a dermatologist, he did much from the medical point of view to help in the development of the country.

HAROLD PRITCHARD, M.D. Lond., F.R.C.P.

Dr. Pritchard, who died on Nov. 26th at his home in Wimpole-street within a few days of his sixty-second birthday, was born and brought up in Chester. He started his medical training in Liverpool and continued it at St. Bartholomew's, qualifying in 1901 and taking the London degree with honours three years later. At this time he was editing the hospital journal. He was next house physician at Addenbrooke's, Cambridge, for two and a half years. Returning to London he demonstrated pathology at St. Bart.'s and was casualty physician there before he was elected to the staffs of the West London and the Miller Hospital, Greenwich. He was one of the first medical men to volunteer in the late war when he joined the staff of the Duchess of Westminster's Hospital at Le Touquet in August, 1914, as physician and pathologist. Here he held the rank of major, R.A.M.C., and did fine work until his transfer in 1917 to London where he was president of the invaliding medical board for the Royal Air Force, with the rank of wing commander. It was at Le Touquet that he met Edith Little, a V.A.D. at the hospital, who became his wife. After the war he settled in Wimpole-street, where he built up a large consulting practice, doing most of his own pathological and bacteriological work. Attacked on several occasions by severe illness which necessitated major operations, his indomitable courage and endurance helped him to come out on the right side. He became senior physician at the West London and Miller hospitals, and also at King George Hospital, Ilford, which was his special pride because he was the first physician on the staff and was largely instrumental in its development. He was an active member of both the Medical Society of London and the West London Medical Society, serving both as president.

Pritchard's colleagues speak of him as an all-round physician, high up in the first class. He had ability, but he also had a deep sense of devotion to his work and to the art of medicine. His kindness to his hospital patients made it difficult for any one to act in his stead. His attendance at medical committees was diligent and he would never spare himself even when tired or in failing health. He was interested in masonry and was a past master of the Rahere and Cavendish lodges. He was also a well-known figure at the Bath Club where until the last few months he was to be seen swimming every morning.

In his last illness, which was protracted, he showed the supreme quality of patience and fortitude, with consideration for those around him and appreciation of their efforts to restore him to health. His wish to recover was strong, but dependent on his future ability to work. He leaves his widow with a daughter at Oxford and a son at Eton.

LIEUTENANT MULLER

THE death of Lieut. J. P. Muller in his 72nd year was announced last week from Copenhagen. He was the keep-fit campaigner par excellence, and his booklets of gymnastic exercises were translated into twenty-four languages. After lecture-demonstration tours in nearly every European country, he settled in London in 1912 and for twelve years conducted the Muller Institute in Dover-street.

In his younger days Muller had been an all-round athlete, and he was convinced that a sedentary life such as he led himself some years later need not necessarily produce physical deterioration. His system of 5–15 minutes' daily exercises, coupled with strict attention to hygiene, helped to keep him and his followers fit and youthful men well into the sixties. Not only was he the business man's friend, but also he successfully advocated his sytem as an initial training for athletes and mountaineers. Muller's aim in his breathing exercises was to obtain elasticity of the thorax and to practise slow quiet respiration even under stress, and so to save the heart. He claimed that his respiration-rate during strenuous exercise, even when he was over sixty, was generally 10 and could be as low as 6. He could, he said, by "wind" alone defeat younger and stronger competitors in wrestling or rowing at high altitudes (12,000 ft.). He criticised the Swedish system frequently and bitterly on the score of over-tense abdominal muscles and rigid chests, which, he said, precluded deep easy respiration, especially expiration. He believed that, by making use of the common aids to health—fresh air, tonic baths, skin-rubbing, and regular and rational exercise—in ordinary daily life and not merely during the annual summer holiday, the average man could keep fit; and, honestly living up to his own principles, he proved his point. His exercises are straightforward "bathroom exercises," with emphasis on the trunk movements so necessary for the sedentary worker. In his life he was a great driving force and a sound and practical advocate of a sound and healthy way of living.

ILLUMINATING ENGINEERING SOCIETY.—At 7 P.M., at the Institution of Mechanical Engineers, Storey's-gate, St. James's Park, London, S.W., on Tuesday, Dec. 13th, Mr. W. D. Wright, D.Sc., will address this society on the response of the eye to light in relation to the measurement of subjective brightness and contrast.

PARLIAMENTARY INTELLIGENCE

CRIMINAL JUSTICE BILL

IN the House of Commons on Nov. 29th Sir SAMUEL HOARE, Home Secretary, moved the second reading of the Criminal Justice Bill, a summary of the provisions of which has already appeared in THE LANCET. He began by paying tributes to previous Home Secretaries, including Sir Robert Peel and Mr. Asquith, who, he said, had made important contributions to penal reform. Sir Robert Peel, he said, had devoted himself whole-heartedly to the subject and introduced the first great Prisons Act. He accompanied that measure with half a dozen other Acts of Parliament reducing the number of capital sentences, raising the standard of prison treatment, mitigating the lot of the convict, and of the prisoner to be transported; in a word he had succeeded to a great extent in bringing to an end in this country the medieval conception of punishment under which imprisonment played a very small part and under which punishment depended almost entirely on sentences of death or mutilation or confiscation. Sir Robert Peel had started the chapter of imprisonment in place of these more brutal methods.

Now the present Government were taking the work a long step further and had embarked on the third chapter in which they were attempting to provide alternative methods for imprisonment. Sir Robert Peel had two convictions which constantly guided him. In the first place he was convinced that undue severity so far from deterring criminals only incited them. He was further convinced that looking at the great variety of crimes and criminals there was no rough and ready method of dealing with them. These two convictions were the basis of this Bill. That humaner methods of treatment in prison administration were having a good and not a bad effect on prisoners was shown by the fact that year by year as these humaner methods were introduced the number of prisoners who were convicted a second time tended constantly to diminish. (Cheers.)

He now came to the second of the two convictions of Sir Robert Peel which he had mentioned—namely, that they could not deal with crime and criminals by any rough and ready method. Crime and criminals covered a very varied field and represented almost every conceivable human aberration and were the result of a thousand and one different things—sometimes wickedness, sometimes bad luck, sometimes folly, sometimes stupidity. The crime statistics for 1937—the last year for which figures were available—showed that the total number of persons found guilty of offences of all kinds was about 800,000, of whom about 7500, or a mere 0·9 per cent., were tried by juries, and 99·1 per cent. were dealt with by magistrates. Most of the offenders who came before the courts did not come within the province of penal reform. It was the 75,000 persons of all ages who were found guilty of indictable offences during 1937 with whom they were chiefly concerned in this regard. It would be folly to attempt to deal with this medley by any kind of uniform treatment, and it would be still greater folly to attempt to apply any kind of rigid uniformity in the treatment of the most important class of these offenders—the young offenders (Cheers)—the class in which lay the greatest chance of reformation and in which there was greater likelihood that it was some childish folly or ignorance that led to the misdemeanour.

It was the chapter in the Bill which dealt with the young offender which in his view was one of the two main justifications for the whole Bill. (Cheers.) The number of boys and girls under 17 found guilty of indictable offences in England and Wales was 25,543 in 1935; 27,126 in 1936; and 29,201 in 1937. In 1937 boys and girls under 17 represented 38 per cent. of the total number of persons found guilty of indictable offences. This was a disquieting fact, but it was dangerous to base on it too wide generalisations. The inquiries of the Home Office went to show that almost all generalisations in this field of penal reform were dangerous. They went to show that to-day the young were not more wicked than formerly, but they were less controlled by their parents. (Cheers.) They went to show that it was not so much films and shilling shockers which made juvenile criminals as broken homes, indulgent mothers, unkind step-mothers, or unemployment. (Cheers.)

In almost all cases imprisonment was the worst possible way of dealing with these uncontrolled, objectionable, and sometimes dangerous young people. Prison, particularly in the case of short sentences, often turned them into little heroes. It made a dangerous break in the thread of their lives and gave them no training for the future. A short sentence often destroyed in the case of a juvenile any deterrent effect that imprisonment might have.

One of the main objects of the Bill was to effect an immediate reduction in the number of young persons received into prison and to provide for the ultimate abolition of imprisonment as a method of treatment for young offenders convicted for such offences as were dealt with by courts of summary jurisdiction. It was proposed to raise the age to 16, below which no child could be sent to prison after conviction. In future no young person between 16 and 17 could be sentenced to imprisonment without a certificate from the Court that the young person was of a depraved and unruly character, and no summary court would be able to send to prison anyone between 17 and 21 unless a careful investigation had been made into the individual case. They proposed a series of new institutions for dealing with the young. For the young before conviction, there would be two kinds of remand homes. The first would be for children under 14, to deal with the problem cases, the abnormal cases, which needed careful medical investigation and often mental treatment. There would also be remand centres for young persons between the ages of 17 and 23, where, again, there would be opportunities for the investigation of problem cases of older ages, and also the kind of mental investigation in certain cases, as was provided in the remand homes for the younger children.

Dealing with the question of mental treatment, Sir Samuel Hoare said that the Bill contained provisions for making it easier to provide medical examination and mental treatment for old as well as young offenders. Where the old could not afford to pay, there was a provision under which funds could be provided by the State. But where the offender could afford to pay the money would be recovered from him. It was proposed to transfer the Criminal Lunatic Asylum of Broadmoor from the direct control of the Home Office to that of the Board of Control. This change was not being made because there was any fault to find with the administration of Broadmoor. Anyone who visited that institution would be struck by the high standard of the administration and the devoted work being carried out by the officials. But it was felt, that, with the growing development of this branch of medical science, it was better to bring all the mental institutions under a single control. The power of release, as was inevitable, would remain in the hands of the Home Secretary.

They were abolishing the anomalous description, "criminal lunatic." He had never thought there was any justification for a description of that kind, for the essence of crime was that a man or woman must know what he or she was doing, and in the nature of things a lunatic could not be responsible for his actions. Accordingly, in future, Broadmoor would be called the State Mental Institution, and the inmates would be designated State mental patients. They had accumulated a considerable body of evidence on this side of penal treatment. In recent years

there had been in progress a very scientific investigation into a number of cases of young offenders in Wormwood Scrubs. He hoped to be able to publish the report in the immediate future. The conclusion which it had reached however was that here again it was dangerous to generalise and to regard mental treatment as a panacea against all sorts of evils, but that in a number of selected cases, particularly in the cases of the young, it undoubtedly did good. They felt that the time had come to make these proposals for a definite step forward along this line of alternative treatment in dealing with offenders, and particularly young offenders. He was attempting to approach these problems from the angles of prevention and reformation. In such a scheme there was no place for the remnants of a period which looked at crime principally from the angle of retribution and deterrent punishment. He therefore proposed to sweep away the remnants of former dispensations, now little more than the stage properties of Victorian melodrama—penal servitude, hard labour, ticket of leave, and the name "criminal lunatic."

The Bill contained a provision to enable them in the future to do away with the Prison Commissioners and to merge the prison administration in the general administration of the Home Office. Consistently with this attitude he was proposing the abolition of corporal punishment, except for cases of mutiny and gross assault in prisons, which were very rare, a year, or even two, passing without a single case. He proposed the abolition of corporal punishment because it was out of date and did not deter the particular individual on whom it was inflicted from offending again, or protect society from similar crimes in future. The Cadogan Committee had come unanimously to the conclusion that the time had arrived for abolition.

NOTES ON CURRENT TOPICS

Blood Tests in Affiliation Proceedings

Lord Merthyr's Bastardy (Blood Tests) Bill had its first reading in the House of Lords last week after a brief and formal introduction. It proposes that the court shall have power to require the mother, child, and putative father to "undergo blood tests to ascertain whether such tests show that the defendant can be excluded from being the father of the child." The power is discretionary, but, if either party so requests, the court shall be obliged to require the tests. If the mother refuses, the court must dismiss her application. The tests are to be conducted, under rules made by the Lord Chancellor, by an "approved person," i.e., a registered medical practitioner whose name is on a panel of persons approved by the Lord Chancellor (after consulting the President of the Royal College of Physicians) as competent to carry out the tests. The approved person will certify the results, and his certificate will be prima facie evidence; the court or either party may require him to be called as a witness; if he attends as a witness at the request of a party, the party may be ordered to pay the costs of the attendance.

The explanatory memorandum prefixed to the Bill goes fully into the scientific position, the grouped characteristics of agglutinogens and the established laws of inheritance of blood characters. It points out that tests can declare, in perhaps one case in three, that a particular man is not the father of a particular child; in the remaining two cases the result will be inconclusive. The memorandum emphasises that it is never possible to say that the man is father of the child, but only that he belongs to one of the groups to which the father belongs.

There have hitherto been three obstacles to the use of evidence of blood groups. The first is the difficulty of satisfying the court that the principles of blood grouping are accepted by medical science as trustworthy within the limits claimed for them. This obstacle is met by the terms of the Bill (which expressly limit the object of the test to the possible exclusion of paternity) and by the memorandum. The second obstacle, also met by the Bill, has been the difficulty of compelling the parties to allow blood specimens to be taken. The third obstacle has been the difficulty of expense. This is to be met by a clause whereby the court may direct payment out of local funds of the costs of the tests and of the giving of evidence of their results. Hitherto the courts before which bastardy proceedings are taken have been embarrassed by the manœuvring of the parties' legal advisers. The mother is challenged to undergo a test and the bench has not been quite sure what weight to give to her refusal. It is not surprising that she has been advised to refuse, since the tests cannot prove her claim, but may entirely destroy it. Presumably, if the Bill passes, the putative father will always demand a test; if so, the court will be spared the exercise of its discretion.

Pensions

In the House of Commons on Nov. 23rd Mr. DAVIDSON moved that reforms should be introduced without delay in the present scale of pensions. Many old age pensioners and widows were being forced, he said, to apply for public assistance because the present scale of pensions was insufficient to provide them with a reasonable standard of life.—Captain CONANT hoped that the existing pensions system would be extended, but urged that the present time was inopportune because of the prime necessity of strengthening the country's defences and the risk that heavier burdens on the taxpayers would imperil financial and industrial stability.—Captain EUAN WALLACE, Financial Secretary to the Treasury, pointed out that pensions this year would cost £95,000,000, of which £65,000,000 came from the Exchequer. Even if it was not possible to increase the scale, there would be an automatic growth of their commitments. The changes of recent years in the birth and mortality rates were from the point of view of pensions, as well as from other points of view, extremely disquieting. The old age pension was intended to provide a minimum benefit in supplementation of savings, annuities, private benefit funds, and superannuation schemes. Such resources did make it possible for the majority of old age pensioners to live on the sum of 10*s*.

The Distressed Areas

Mr. DAVID ADAMS moved that the Special Areas Act should be amended and made applicable to all distressed areas. A minister of cabinet rank ought to be appointed to take charge of the special areas. The means test should be abolished without delay and a shorter working day instituted. The school leaving age should be raised first to 15 with proper allowances, and then to 16, and pensions should be provided to take the older workers out of industry at an earlier age.—Mr. LENNOX-BOYD, Parliamentary Secretary to the Ministry of Labour, said that there were well over 100,000 more persons in employment in the special areas than three years ago. That was not an urge to complacency or self-satisfaction, but rather an incentive to greater effort, because it showed what could be done by deliberately weighting the scale in favour of those areas which from long unemployment had been in exceptionally adverse conditions.

Burning Pit Heaps

On Nov. 25th in the House of Commons Mr. LAWSON moved the second reading of the Public Health (Coal Mine Refuse) Bill. He said that the Public Health Act had given wider scope to the investigation of rubbish tips and in the last year or two attention had been directed to the growing evil of burning pit heaps. Those responsible had been powerless to apply the Public Health Act as it was at present drawn. The overwhelming stench from these pit heaps still poisoned the air, and the evil was getting rapidly worse. In this Bill he proposed to strengthen the Act of 1936 by specifically naming these burning

pit heaps as those which were "liable to spontaneous combustion," and as a "deposit which is prejudicial to health," and by providing not that they might be dealt with, but that they should be dealt with summarily. Communities were being affected vitally in their health and in the amenity of their surroundings by these poisonous heaps, of which there were 266 in England and Wales and many in Scotland.—Sir FRANCIS FREMANTLE said that public health law was so complicated already that one did not want it further confused by a large number of heterogeneous measures unless they could be worked into the present public health system. The proposal here was that they should work the measure into the present system by a slight enlargement of the definition in the nuisance clause of the Public Health Act. It was difficult to say what was prejudicial to health or a nuisance and what was not, so that the drafting of this Bill would require very careful attention in Committee. The public health world would be delighted if they could get power to deal with these things. It seemed extraordinary that chemical and engineering science could not find some means of preventing these heaps from burning. In South London he had had experience of smoking refuse heaps. The best way to deal with these was by what was known as the Bradford system, under which the refuse instead of being destroyed was disposed of so as to make fresh sites not only for football grounds, tennis courts, and public playing grounds, but even for building operations. This matter should be taken up not merely by the mining community, or from the point of view of public health; it ought to be taken up by the Council for the Preservation of Rural England.—Mr. BERNAYS, Parliamentary Secretary to the Ministry of Health, said that every member of the House would be glad to put an end to these burning pit heaps if a practical means could be found. The Ministry of Health had done everything in their power by administrative action to find means of abating this nuisance. Recently the staff of alkali inspectors had been increased and extensive study and experiment were in progress in consultation with the interests concerned. Of the 266 burning pit heaps 156 had been visited and remedial measures had been recommended. He was informed that only in a very trivial number of cases had there been any difficulty with the coal owners.

QUESTION TIME

WEDNESDAY, NOV. 23RD

Medical Supplies in Case of Emergency

Sir HENRY MORRIS-JONES asked the Minister of Health whether any steps had been taken to secure adequate supplies of medical equipment, such as drugs, dressings, appliances, &c., for the use of hospitals in this country in the event of an emergency arising.—Mr. BERNAYS replied: Surgical equipment has been purchased for a number of hospitals which do not normally take surgical cases in order to enable them to undertake casualty work. Stocks of prophylactic sera have been obtained and other equipment of various kinds secured. Detailed inquiries which are being made through trade associations suggest that, in general, adequate reserves of the hospital equipment referred to by my hon. friend would be available in the country.

Under-nourishment in Northern Rhodesia

Mr. MATHERS asked the Secretary of State for the Colonies whether he proposed to take immediate steps to deal with the under-nourishment and disease referred to in the Report of Major Orde Brown on Northern Rhodesia.—Mr. MACDONALD replied: Yes, Sir. The conditions to which Major Orde Brown directed attention, together with the proposals for the extension of the Northern Rhodesia health services put forward by Sir Alan Pim and Mr. Milligan in their recent report, are receiving active consideration. A disease survey of the territory is being undertaken, and campaigns against syphilis yaws and skin affections are being initiated. Additional provision for health services will be made in the 1939 Estimates; and I can assure the hon. Member that, in considering questions of health, the Government is fully alive to the importance of securing an adequate standard of nourishment.

Mr. PALING: Have there not been a great many of these reports, all of the same character, within the last nine or ten years, and have we not always been promised that the matter shall receive active consideration? Has anything really substantial yet been done?

Mr. MACDONALD: Practical steps have already been taken, and in the Budget for 1939 money will be provided for additional practical action.

Army Recruits and Physical Unfitness

Mr. JAMES GRIFFITHS asked the Secretary of State for War what was the proportion of applicants for enlistment in the Army who had been rejected on the grounds of physical unfitness in the past 12 months; and if he could give separate figures for the areas of South Wales, North-east and North-west England, Scotland, and the southern counties of England.—Sir V. WARRENDER, Financial Secretary to the War Office, replied: The answer to the first part of the question is 16 per cent. in the year ended Sept. 30th last, which is the latest date to which I can give figures. As regards the last part of the question, I can only give separate figures for the 13 recruiting areas in Great Britain for the twelve months ended Sept. 30th last, which are as follows:—

Recruiting area	Applicants to enlist	Rejected on physical and medical grounds	
		Number	Percentage
East Anglian	2,338	281	12
Home Counties ..	2,867	270	9
London	10,709	1,736	16
Northumbrian ..	3,924	738	18
West Riding	4,815	522	10
North Midland ..	3,180	486	15
Wessex*	4,215	436	10
South Midland ..	5,588	1,234	22
West Lancashire ..	7,270	1,451	20
East Lancashire ..	3,199	577	18
Welsh	2,967	407	13
Highland	2,390 } 6,231	381 } 1,244	16 } 19
Lowland	3,841 }	863 }	22 }
Total: Great Britain..	57,303	9,382	16

* Including Channel Islands.

Medical Practitioners and A.R.P. Work

Mr. DAY asked the Lord Privy Seal what arrangements had been made for the purpose of ensuring that medical practitioners in this country who had volunteered for air-raid precautions duties received specific training in the treatment of various types of gas poisoning and/or casualties.—Sir JOHN ANDERSON replied: Specially selected and trained medical practitioners were appointed by the Home Office in 1936 and are available throughout Great Britain to give to members of the medical and allied professions, whether they have volunteered for air-raid precautions duties or not, free training in the general and medical aspects of anti-gas measures so as to enable them to give skilled treatment to gas casualties.

The First Three Days of Incapacity

Sir HENRY MORRIS-JONES asked the Minister of Health whether he was aware that under Section 32 (i) (*b*) of the National Health Insurance Act of 1936 specific provision was made that sickness benefit, where otherwise payable, should commence on the fourth day of the incapacity; and whether he would consider introducing legislation to reduce the period in view of the hardship frequently involved to insured persons whose sickness lasted for a week or less.—Mr. ELLIOT replied: The reply to the first part of the question is in the affirmative. As regards the second part I would point out that payment of sickness benefit from the first day of incapacity may be made under the present law where an approved society is able to make the necessary financial provision out of a disposable surplus and the members decide to do so. Very few

societies have, in fact, adopted this benefit which is as comparatively expensive one. Any general abolition of the normal waiting period of three days would require an increase in the weekly contributions. I do not think that there is any demand for such a change on the part of approved societies in general.

Pasteurisation

Mr. LEACH asked the Minister of Agriculture if his expert advisers had personally examined and conducted experiments in the problem of the pasteurisation of milk; and, if so, what conclusions they had reached.—Mr. MORRISON replied: Research into pasteurisation problems has been conducted at several centres, including those grant-aided by my department and the Department of Agriculture for Scotland. The Government's policy in regard to the matter is set out in the Milk Industry Bill now before Parliament.

Storage of Blood for Transfusion

Mr. DAVID ADAMS asked the Minister of Health whether he was aware that thousands of lives had been saved by blood stored for transfusion purposes in the Spanish war; whether he was exploring the possibilities of the storage of blood in this country for transfusion in case of war; and whether he would consider, in the event of this being adopted, if the donating of blood for storage purposes might be officially recognised as a form of national service.—Mr. ELLIOT replied: I am aware that the transfusion of stored blood has been extensively adopted in Spain and my advisers are in touch with the arrangements for blood transfusion which are proposed in this country by the British Red Cross Society and the hospitals. The valuable services rendered by blood donors are greatly appreciated, but I am not sure what form of official recognition the hon. Member has in mind, and perhaps he will communicate with me.

TUESDAY, NOV. 29TH

Heart Disease and Workmen's Compensation

Mr. CASSELLS asked the Home Secretary if he was aware that no compensation was payable under the Workmen's Compensation Acts in respect of disablement associable with heart affection following prolonged strain in employment; and if he was prepared to cause such disablement in future to be treated as due to industrial disease.—Mr. GEOFFREY LLOYD replied: My right hon. friend is advised that he could not properly schedule as an industrial disease under Section 45 of the Act such an indefinite condition as is mentioned in the question. Whether the scope of the Act should be widened in relation to non-accidental injuries would be a question for the Royal Commission.

MEDICAL NEWS

University of Oxford

On Jan. 1st, 1939, Dr. B. G. Maegraith will succeed Dr. K. J. Franklin as dean of the medical school.

Under the Nuffield benefaction for dominion graduates a research demonstratorship has been awarded to Dr. W. T. Agar, an officer of the Commonwealth serum laboratories at Melbourne.

University of Cambridge

Dr. G. S. Graham-Smith, F.R.S., Dr. G. H. Orton, Dr. Ffrangcon Roberts, Dr. F. G. Spear, Dr. Raymond Williamson, Dr. E. P. Cumberbatch, Dr. Peter Kerley, Dr. W. P. Philip, Dr. Russell Reynolds, and Prof. Sidney Russ, D.Sc., have been appointed members of the committee for medical radiology and electrology for 1939.

Applications for a John Lucas Walker studentship should be sent to Prof. H. R. Dean at the department of pathology not later than Dec. 10th. Further particulars may also be had from him.

University of London

At recent examinations the following candidates were successful:—

D.P.M.

With special knowledge of mental diseases.—H. N. Bradbrooke, J. E. O. Gillespie, David Gilmour, and J. B. Phillips.
Part A.—R. W. Crocket and M. S.-M. Rayner.

Society of Apothecaries of London

At recent examinations the following candidates were successful:—

MASTER OF MIDWIFERY.

J. D. Burrows, Margaret S. L. McCash, S. S. Naidu, and Achamma Thomas.

L.M.S.S.A.

Surgery.—C. V. Arthur, J. A. Bailey, D. L. P. De Courcy, J. Fergusson, N. A. Jevons, H. Shepherd, W. Simpson, J. W. Weston, and C. E. Winterstein.
Medicine.—H. J. S. Coldham, R. M. Corker, H. L. Francis, J. B. Gurney Smith, J. A. L. Leeming, R. P. Parkinson, T. G. Viljoen, and M. Whitehead.
Forensic Medicine.—H. J. S. Coldham, R. M. Corker, H. L. Francis, J. B. Gurney Smith, J. A. L. Leeming, R. P. Parkinson, T. G. Viljoen, and M. Whitehead.
Midwifery.—H. J. S. Coldham, M. Becker, M. M. El Garrahy, F. W. Ford, A. J. Fraser Simson, A. Jones, and A. B. Taylor.

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery, and midwifery:—

M. Becker, Royal Colleges, Edin.; R. M. Corker, Guy's; D. L. P. De Courcy, Oxon, and St. Thos.; J. Fergusson, Liverp.; H. L. Francis, London Hosp.; N. A. Jevons, Westminster; R. P. Parkinson, London Hosp.; T. G. Viljoen, Guy's; and J. W. Weston, Bart.'s.

Welsh National School of Medicine

At recent examinations the following candidates were successful:—

Pathology and Bacteriology.—Mary E. Budding, T. C. H. Davies, Trevor Griffiths, D. I. Harries, A. B. J. Hill, Olwen Howell, R. T. Jenkins, G. A. Jones, J. E. Lloyd, Mary E. Lloyd, Stanley Love, and Thomas Walker.
Obstetrics and Gynæcology.—Cyril Davies, W. H. Harris, J. C. Herapath, H. R. Hudd, Margaret Morgan, Cecil Thomas, and William Williams.

Chelsea Clinical Society

The annual dinner of this society will be held at the Hotel Rembrandt, Thurloe-place, S.W., on Tuesday, Dec. 6th, at 8 P.M. The guest of honour will be Sir Eric Maclagan, curator of the Victoria and Albert Museum.

Medical Education in Russia

Major-General Sir Cuthbert A. Sprawson, I.M.S. retd., who visited Russia this summer, will speak at a meeting arranged by the Society for Cultural Relations on Thursday, Dec. 8th, at the Royal Society of Arts, John-street, Adelphi, London, W.C., at 8.30 P.M. Prof. W. E. Le Gros Clark, F.R.S., will be in the chair. Invitations may be had from the secretary of the society, 98, Gower-street, W.C.1. Sir Cuthbert will speak principally on Soviet medical education and the campaign against tuberculosis.

Rheumatism Research in Naval Training Centres

The Empire Rheumatism Council, in coöperation with the Admiralty, has set up a research foundation to investigate rheumatic disease in the training establishments of the Royal Navy. Up to the first decade of this century rheumatism was a considerable problem in H.M. ships, and its present rarity among trained seamen is attributed to improvement of medical services and living accommodation. In the training establishments, however, the position is not yet considered entirely satisfactory and it is thought that the behaviour of the disease among a great number of youths, all of the same age-group, all under disciplinary control, and subject to medical observation over a long period, may provide useful information. The research advisory committee has appointed a subcommittee, consisting of Lord Horder, Sir William Willcox, Prof. Geoffrey Hadfield, Dr. Mervyn Gordon, F.R.S., and Dr. W. S. C. Copeman, to supervise the work. Dr. C. A. Green, of the bacteriology department of Edinburgh University, is to take direct charge of the foundation, and the Sir Halley Stewart trust has granted him a research fellowship for three years for this task. He will be assisted by other permanent workers.

Harben Lectures

On Dec. 5th, 6th, and 7th at 4 P.M. in the hall of the Royal Institute of Public Health and Hygiene, 28, Portland-place, London, W., Dr. R. D. Passey, professor of experimental pathology and cancer research in the University of Leeds, will deliver the Harben lectures. He will speak on factors in carcinogenesis. Admission is free to students and members of the medical profession, and application for seats should be made to the secretary of the institute.

Sheffield Medical Dinner

The annual medical dinner which was held on Nov. 24th at the Grand Hotel, Sheffield, was attended by about 150 people, including this year ladies and non-medical guests. Among the guests of honour were Dr. Robert Hutchison, Prof. Miles H. Phillips, who is retiring from Sheffield, the vice-chancellor of Sheffield University (Dr. J. I. O. Masson), and the chairmen of the local voluntary hospitals. Dr. James Clark, superintendent of the City General Hospital, in proposing the toast of the Guests, said that it was an honour to Sheffield that the president of the Royal College of Physicians had found time in his busy life to come to their dinner. Dr. Hutchison's "Lectures on Diseases of Children" was the first medical treatise which the speaker had really enjoyed reading. It was a great gift to be able to make a treatise on disease more interesting than any novel. They wished on this occasion to pay special tribute to Prof. M. H. Phillips. He had done a great deal towards putting Sheffield on the medical map, and was an inspiring teacher and a great clinician. They could not but feel regret that he was about to bury himself and his talents in the wilds of Wales.

Dr. Robert Hutchison said he understood that the Sheffield medical dinner represented all the medical interests in Sheffield, which was a wholly admirable idea. In almost every city there was a spirit of what in bigger hings was called "nationalism"—being loyal to one's own hospital, and jealous of other hospitals. There was a larger loyalty—to the profession. The best way of getting rid of the friction apt to arise between the different branches of the profession was to get people to meet together as they were meeting there. Referring to the innovation of the presence of ladies, he said that no one more deserves a dinner than the wife of a doctor. She runs his house, runs the doctor, and is his confidante. The only person to whom a doctor may speak freely about other doctors is his wife. That was one reason why doctors got married.—Prof. Miles Phillips said that the 34 years he had spent in Sheffield had been years of immense happiness in every possible way. When he decided to specialise in obstetrics and gynæcology he looked up in the "Medical Directory" the hospitals that had the oldest staffs. He discovered that at the Jessop Hospital the oldest member had been in the Crimea. He wrote immediately and by return was offered a position. The hospital had since expanded in an extraordinary way. When the new obstetric block was completed it would be one of the finest in the country, providing a separate room for each patient.

Royal Dental Hospital of London

The annual dinner of the staff and past and present students of this hospital was held at the Trocadero Restaurant on Nov. 26th, with Mr. F. C. Porter in the chair. In proposing the health of the Hospital and School, the chairman expressed their gratification at having their own athletic ground and a fine new pavilion. He contrasted the elaborate aids to treatment nowadays with the simplicity of his own youth, comparing especially the prolonged nitrous oxide and oxygen anæsthesia in a spacious airy room, with the hurried "single" given by a country practitioner. He mentioned with regret the death last year of Mr. W. H. Dolamore, whose work had been animated by desire that the profession should receive appreciation, and that it should be worthy of that appreciation. The dental profession could play a large and symbolic part in the national health campaign by clearing away the results of decay and neglect and filling up the gaps. Mr. H. Stobie, the dean, replied, regretting the resignation of Dr. A. W. Oxford, who with Sir Frank Colyer had first provided in-patient facilities and made the hospital at that time unique. The school was one of the four in the kingdom whose students might compete for a scholarship in the University of Michigan. The examination results had been well up to the average. One of the most important events of the year had been the establishment by the University of London at the school of a chair of dental surgery worth £1000 a year. Mr. A. T. Pitts proposed the health of the Visitors, ande specially welcomed Mr. Hugh Lett, president of the Royal College of Surgeons. Dentists owed the college, he said, a debt of gratitude for founding the first dental qualification in this country in 1860, and for maintaining the finest odontological museum in the world and the Tomes prize, which was held by so many distinguished men. Mr. Lett, replying, spoke of the close connexion between the college and the dental profession, and said it was a pity that the profession had had to wait so long for the higher diploma which the college now wished to set up. The council had, however, consulted "one of these troublesome and obstructive lawyers," who had doubted whether their charter gave them the necessary power. There might be need for an amendment of the charter or a private Act of Parliament. Mr. T. A. Coysh proposed the health of the Chairman.

Medical Films and the Senior Student

Each spring an address on some popular subject is given at B.M.A. House to senior students and recently qualified practitioners in London, the arrangements being made by the metropolitan counties branch of the British Medical Association. This year it was decided also to hold evening meetings at which films illustrating medical and surgical technique would be shown. The first was held on Nov. 22nd, when Sir William Wheeler, president of the branch, received the students. Mr. McAdam Eccles, chairman of the students' committee of the branch, introduced the two speakers, Mr. R. Watson Jones, of Liverpool, who showed his film on the modern treatment of fractures, and Mr. Geoffrey Keynes, who showed his film on blood transfusion. A vote of thanks was proposed by Dr. P. B. Spurgin, chairman of the branch council. The attendance was more than 400.

Births, Marriages, and Deaths

BIRTHS

CAMERON.—On Nov. 22nd, at Wallington, Surrey, the wife of Dr. J. Clark Cameron—a daughter.

CLARKSON.—On Nov. 26th, at Welbeck-street, W.1, the wife of Mr. Patrick Wensley Clarkson, F.R.C.S.—a son.

CONSTABLE.—On Nov. 24th, at Dawlish, Devon, the wife of Dr. H. A. Constable—a daughter.

DREW.—On Nov. 23rd, at Woolavington Wing, Middlesex Hospital, the wife of Capt. Robert Drew, R.A.M.C.—a daughter.

KELLAR.—On Nov. 24th, the wife of Dr. R. J. Kellar, of Gloucester-road, Palace Gate—a daughter.

RUDD.—On Nov. 22nd, at Tiverton, the wife of Dr. T. N. Rudd—a son.

SCHARFF.—On Nov. 24th, at Singapore, the wife of Dr. Scharff—a son.

WARREN.—On Nov. 25th, at Dartmouth, the wife of Dr. J. G. Warren—a son.

MARRIAGES

BERTRAM—BIRKETT.—On Nov. 25th, in Khartoum, the Rev. C. F. L. Bertram to May Birkett, M.B. Lond.

CURRANT—LINTS SMITH.—On Nov. 23rd, at Christ Church, Woburn-square, Eric James Currant, M.B. Camb., to Lena Lints Smith.

GRIEVE—BENT.—On Nov. 21st, in St. Giles' Cathedral, Edinburgh, Michael Fletcher Grieve, M.B. Edin., to Cecilia Drummond Bent.

DEATHS

BATE.—On Nov. 24th, at Hove, Arthur Geoffrey Bate, M.B. Camb., F.R.C.S.E., aged 63 years.

GOULD.—On Nov. 26th, at Cliftonville, Margate, Henry Gould, M.R.C.S., L.S.A., in his 92nd year.

LEWIS.—On Nov. 23rd, at Shears Green, near Gravesend, Lt.-Col. Stanley Everard Lewis, M.B. Glasg., R.A.M.C. (Retd.).

MUNRO.—At Tapshays, Marnhull, Dorset, on Nov. 24th, Donald John Munro, M.D., B.S., aged 62. R.I.P.

PRITCHARD.—On Nov. 26th, at Wimpole-street, Harold Pritchard, M.D. Lond., F.R.C.P.

SHAW.—On Nov. 27th, at Haslemere, Surrey, William Henry Cantrell Shaw, M.A., M.B. Camb.

WAKEFIELD.—On Nov. 28th, at Horley, Surrey, Christopher Frank Wakefield, M.R.C.S., aged 75 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary

Dec. 5th to Dec. 10th

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

Pathology. 8.30 P.M., H. B. Day: The Action on the Kidney following the Injection of Certain Bacterial Preparations. R. M. Fry: Grouping of Hæmolytic Streptococci. E. D. Hoare: Use of Lipoid for Blood Cultures. I. Doniach: Repeated Biopsies from Irradiated Carcinoma of the Cervix.

Orthopædics. 8.30 P.M., Mr. C. Lambrinudi: Injuries to Both Semilunar Cartilages of the Knee-joint. Dr. F. Campbell Golding: The Congenital Short Femur and Congenital Coxa Vara. Mr. Norman Capener: Intertrochanteric Osteotomy (with cinematograph film). Mr. K. H. Pridie: Fractures of the Shaft of the Humerus (with cinematograph film).

WEDNESDAY.

Surgery. 8.15 P.M., special general meeting. 8.30 P.M., Prof. John Morley and Mr. H. B. Yates: Diagnosis and Treatment of Acute Pancreatitis.

THURSDAY.

Radiology: United Services. 8.30 P.M., Major D. B. McGrigor: Radiology in War-time. (This meeting will be held in camera.)

FRIDAY.

Clinical. 5.30 P.M. (Cases at 4.30 P.M.) Mr. G. Gordon-Taylor: (1) Congenital Cyst of Liver. (2) Neurinoma of Vagus. (3) Hindquarter Amputation for Muscle Sarcoma. Mr. Cecil P. G. Wakeley: (4) Abdominal Tumour. (5) Carcinoma Mammæ with Multiple Secondaries. Mr. J. E. H. Roberts: (6) Pericardiectomy for Pick's Disease. (7) Lobectomy for Bronchiectasis, with Cure of Diaphragmatic Hernia. (8) Diaphyseal Achalasia with Obstructed Diaphragmatic Hernia: Mr. John Hunter: (9) Cardio-omentopexy. Mr. L. O'Shaughnessy: (10) Cardio-pneumonopexy. Mr. A. Dickson-Wright: (11) Malignant Hypertension Treated by Sympathectomy and Adrenalectomy. (12) Boeck's Sarcoid of Phalanges. Dr. J. Livingstone: (13) Syphilis of Lung. Dr. Bernard Schlesinger: (14–15) Paroxysmal Tachycardia in Children. Mr. Harold Edwards: (16) Aneurysm of the Abdominal Aorta. Mr. Hodgson Boggon: (17) Melorheostosis. Dr. B. A. Young and Dr. A. Kahan: (18) Alkalosis following Pyloric Stenosis. Mr. R. C. Brock: (19) Popliteal Aneurysm. Dr. L. P. E. Laurent: (20) Unilateral Exophthalmic Ophthalmoplegia. Dr. R. Laird: (21) Acute Suppurative Pericarditis. Dr. N. Tanner: (22) Dwarfism from Regional Enteritis. Dr. C. A. Clarke and Dr. Jamieson Coghill: (23) Unilateral Exophthalmos. Sir Maurice Cassidy and Mr. E. M. Buxzard: (24) Inferior Vena Cava Obstruction.

Ophthalmology. 5 P.M., clinical meeting at the Royal London Ophthalmic Hospital.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 26, Portland-place, W.1.

THURSDAY.—8.15 P.M., Dr. D. Bagster Wilson (Tanganyika Territory): Implications of Malarial Endemicity in East Africa.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

FRIDAY.—8.45 P.M. (Miller General Hospital, S.E.), Sir Crisp English: On Taking Stock. (Purvis oration.)

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

THURSDAY.—8.30 P.M. (11, Chandos-street, W.), Dr. Ethel Dukes: The Infectious Quality of Neurosis.

BIOCHEMICAL SOCIETY.

FRIDAY.—3.45 P.M. (Laboratories of Messrs. J. Lyons, Hammersmith-road, W.), short communications.

BRITISH INSTITUTE OF RADIOLOGY.

WEDNESDAY.—2.30 P.M., opening of annual congress at Central Hall, Westminster. 3 P.M., Mr. G. Shearer, D.Sc.: X Rays—Their Influence in Pure and Applied Science. (Mackenzie Davidson lecture.)

THURSDAY.—10.30 A.M., Dr. J. M. Woodburn Morison, Dr. J. Struthers Fulton, and Dr. G. J. Van der Plaats (Maastricht): Contact Therapy.

FRIDAY.—10.30 A.M., Sir Girling Ball, Dr. G. Vilvandré, and Dr. C. Chaussé (Paris): X Ray Diagnosis with reference to the Urinary Tract. 3 P.M., Dr. R. Ledoux Lebard (Paris): Advances in the X Ray Diagnosis of Gastric Cancer. (Silvanus Thompson lecture.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

THURSDAY.—5 P.M., Mr. H. A. T. Fairbank: Increased and Decreased Density of Bone with special reference to Fibrosis of the Marrow. (Robert Jones lecture.)

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland-place, W.

MONDAY, TUESDAY, and WEDNESDAY.—4 P.M., Prof. R. D. Passey: Factors in Carcinogenesis. (Harben lectures.)

INSTITUTE OF PSYCHO-ANALYSIS, 96, Gloucester-place, W.

TUESDAY.—8.30 P.M., Dr. Edward Glover: Hysteria.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

TUESDAY.—4.30 P.M., Professor E. Mapother: Medical Psychology.

WEDNESDAY.—Noon, clinical and pathological conference (medical). 2 P.M., Mr. G. A. D. Haslewood, Ph.D.: The Cerebro-spinal Fluid. 3 P.M., clinical and pathological conference (surgical). 4.30 P.M., Sir Henry Dale, F.R.S., Chemical Transmission of Nerve Impulses.

THURSDAY.—2.15 P.M., Dr. Duncan White: radiological demonstration. 3.30 P.M., Dr. H. L. Sheehan: Some Aspects of Obstetric Pathology.

FRIDAY.—2 P.M., clinical and pathological conference (obstetrics and gynæcology). 2.30 P.M., Mr. A. Clifford Morson: Surgery of the Prostate.

Daily 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY.—2 P.M., Dr. Donald Paterson: Nephritis in Childhood. 3 P.M., Mr. H. C. Apperly: Value of Orthodontic Treatment.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

ST. GEORGE'S HOSPITAL, S.W.

THURSDAY.—5 P.M., Dr. Anthony Feiling: neurological demonstration.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY.—3.30 P.M., Dr. Symonds: Headaches and Intracranial Pressure.

TUESDAY.—3.30 P.M., Dr. Elkington: Epilepsy.

WEDNESDAY.—3.30 P.M., Dr. Walshe: Clinical demonstration.

THURSDAY.—3.30 P.M., Dr. Riddoch: The Sensory System.

FRIDAY.—3.30 P.M., Dr. Bernard Hart: The Psychoneuroses.

Out-patient clinic daily at 2 P.M.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY.—4 P.M., Mr. Harold Kisch: Inflammations of the Tonsils.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N.W.

WEDNESDAY.—4 P.M., Mr. T. Pomfret Kilner: Present-day Plastic Surgical Treatment. (Lantern demonstration.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.

MONDAY to SATURDAY.—WEST END HOSPITAL FOR NERVOUS DISEASES, Welbeck-street, W., afternoon course in neurology.—HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars-road, S.E., afternoon course in dermatology.—BROMPTON HOSPITAL, S.W., all-day course in thoracic surgery.—LONDON CHEST HOSPITAL, Victoria Park, E., Wed. and Fri., 6 P.M., M.R.C.P. course in heart and lung diseases.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh-road, S.W.

FRIDAY.—3.30 P.M., Dr. A. P. Cawadias: The Endocrinal and Metabolic Aspects of the Rheumatic Diseases.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.

WEDNESDAY.—4 P.M. (St. James' Hospital, Ouseley-road, S.W.), Dr. C. E. Lakin: medical cases.

UNIVERSITY OF SHEFFIELD.

FRIDAY.—3 P.M. (Royal Infirmary), Mr. W. H. Wellwood Ferguson: ophthalmological lecture-demonstration. 3 P.M. (Jessop Hospital), Mr. L. B. Patrick: Lecture-demonstration on obstetrics and gynæcology.

LEEDS GENERAL INFIRMARY.

TUESDAY.—3.30 P.M., Mr. Reginald Broomhead: Hip Lesions Throughout Life.

LEEDS PUBLIC DISPENSARY.

WEDNESDAY.—4 P.M., Dr. W. Goldie: Treatment of Common Rheumatic Diseases.

MANCHESTER ROYAL INFIRMARY.

FRIDAY.—4.15 P.M., Mr. W. R. Douglas: surgical demonstration.

EDINBURGH ROYAL INFIRMARY.

FRIDAY.—5 P.M., Prof. L. S. P. Davidson: The Mechanism of Megaloblastic Blood Formation. (Honyman Gillespie lecture.)

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY.—4.15 P.M. (Royal Maternity and Women's Hospital), Prof. James Hendry: Pelvic Disproportion.

Appointments

ALMOND, SIMON, M.B. Manch., M.R.C.P., Hon. Assistant Physician to the Manchester Victoria Memorial Jewish Hospital.

ANDERSON, IAN M., M.B. Glasg., First Assistant Registrar to the Children's Department, London Hospital.

BROWN, PATRICK F., M.B. N.U.I., Third Assistant Medical Officer to the Staffordshire County Mental Hospital, Burntwood.

BUCKLEY, JOHN, M.B. Camb., D.A., Hon. Anæsthetist to the Italian Hospital, London.

CRAIG, J. WALLACE, M.D. Dubl., Tuberculosis Officer in the Islington Tuberculosis Dispensary (North) at the Royal Northern Hospital.

DAY, F. M., M.R.C.S., D.P.H., Deputy Medical Officer of Health for Hammersmith.

DEARN, E. MERRILLS, M.B. Sheff., D.L.O., Hon. Assistant Ear, Nose, and Throat Surgeon to the Royal Infirmary, Hull.

EDWARDS, J. FFOULKES, B.Chir. Camb., Assistant Physician to Queen Mary's Hospital for the East End, London.

FRENCH, JANE O., M.B. Glasg., D.P.H., D.C.O.G., Assistant Medical Officer for Coventry.

HARDWICK, CHRISTOPHER, M.B. Camb., M.R.C.P., D.C.H., Medical Registrar at the Middlesex Hospital.

HEGGS, G. B. M., M.D. Lond., M.R.C.P., Hon. Dermatologist to the British Red Cross Society's Clinic for Rheumatism, London.

JONES, H. W. EVERLEY, M.B. Lond., M.R.C.P., Physician to Out-patients, Victoria Hospital for Children, Chelsea.
KENNEDY, C. M., M.B.E., F.R.C.S., Hon. Surgeon to the Prince of Wales Hospital, Plymouth.
LESSER, S. A. H., M.B. Camb., Junior Assistant Medical Officer at Plaistow Fever Hospital.
LISTER, ARTHUR, M.B. Camb., F.R.C.S., Hon. Assistant Ophthalmic Surgeon to the London Hospital.
LIVINGSTON, SHIRLEY M., M.B., Assistant Child Welfare Medical Officer for Newcastle-on-Tyne.
LLOYD, W. E., M.D. Lond., F.R.C.P., Physician to the Hospital for Consumption, Brompton.
MACKWORTH, ELIOT D., M.B. Aberd., Medical Registrar at the Royal Northern Hospital.
MILLIGAN, EVALEEN N. A., M.B. Manch., Assistant Medical Officer for Huddersfield.
MOORE, R. HASTINGS, M.B. Bristol, Hon. Assistant Anæsthetist to the Royal Infirmary, Bristol.
NEVIN, SAMUEL, M.D. Belf., M.R.C.P., Hon. Neurologist to the British Red Cross Society's Clinic for Rheumatism, London.
NEWMAN, P. H., F.R.C.S., Fracture and Orthopædic Registrar at the Middlesex Hospital.
SIMPSON, R. R., M.B. Glasg., F.R.C.S.E., Hon. Ear, Nose, and Throat Surgeon to the Royal Infirmary, Hull.
TAYLOR, HERMON, M.Chir. Camb., F.R.C.S., Hon. Surgeon to King George Hospital, Ilford.
UNGER, W. F. M., M.D. Berlin, M.R.C.P.E., Assistant School Medical Officer for Preston.
YOUNG, F. H., O.B.E., M.D. Camb., F.R.C.P., Physician to the Hospital for Consumption, Brompton.

London County Council Hospital Staff.—The following appointments, promotions, and transfers are announced. A.M.O.(I) or (II) = Assistant Medical Officer, Grades I or II.
CLARKE, A. R., M.B. Lond., F.R.C.S., A.M.O. (I), St. Giles';
DUNCAN, J. M., M.B. Aberd., A.M.O. (II), Archway;
MCGUINNESS, A. E., M.B. Sydney, A.M.O. (II), Fulham;
WALKER, R. P., M.B. Aberd., A.M.O. (II), Highgate;
DROSSO, VICTOR, M.R.C.S., A.M.O. (II), Mile End;
LAYCOCK, J. D., M.B. Lond., A.M.O. (II), St. Alfege's;
WATTS, JOAN, M.B. Liverp., A.M.O. (II), St. Olave's;
FREEDMAN, BERNARD, M.B. Lond., M.R.C.P., A.M.O. (II), St. Stephen's;
LOGAN, D. C., M.B. Edin., D.P.H., A.M.O. (II), King George V Sanatorium;
MOLE, R. H., B.M. Oxon., House Physician, Lambeth;
ROY ALFRED, M.B. Glasg., House Physician, Lambeth;
PRITCHARD, J. S., M.B. Camb., House Surgeon, Mile End;
LLOYD, O. C., M.B. Camb., House Physician, Mile End;
WETHERED, R. R., M.B. Oxon., House Physician, Paddington;
STEWART, C. J., M.R.C.S., House Physician, St. Alfege's;
HODSON, C. J. C. G., M.R.C.S., House Physician, St. Giles';
CRANKSHAW, T. P., M.B. Melbourne, House Surgeon, St. Leonard's;
SAMUEL, A. R., M.R.C.S., House Physician, St. Olave's;
JOHNS, T. A. M., B.M. Oxon., House Surgeon, Downs;
SMITH, S. M., M.B. N.Z., Clinical Assistant, St. Mary, Islington;
RAMSAY, A. M., M.B. Aberd., Senior A.M.O. (II), North-Western;
BAKER, HARRY, M.B., Ch.B. Manch., M.R.C.P., A.M.O. (I), St. Nicholas';
COPITHORNE, R. E. C., M.R.C.S., D.C.H., A.M.O. (I), Lambeth;
BROWNE, W. H., L.R.C.P.I., A.M.O. (I), Western;
WESTROPP, CELIA K., L.M.S.S.A., House Physician, St. Olave's.

Royal Cancer Hospital, London.—The following appointments are announced:—
WALE, R. S., M.D. Lond., Assistant Pathologist;
WYLIE, J. R., M.B. Durh., D.M.R.E., Part-time Radiologist; and
ABEL, A. LAWRENCE, M.S. Lond., F.R.C.S., Surgeon.

St. Mary's Municipal Hospital, Portsmouth.—The following appointments are announced:—
HARRIS, D. P., M.B. Dubl., Assistant Resident Medical Officer;
BROWN, A. G. T., L.M.S.S.A., Assistant Resident Medical Officer; and
MACKENZIE, IAN, M.B., Assistant Resident Medical Officer.

Examining Surgeon under the Factories Act, 1937: Dr. J. J. CROWE (Blaenavon District, Monmouth).

Vacancies

For further information refer to the advertisement columns

Aylesbury, Royal Buckinghamshire Hosp.—Sen. and Jun. Res. M.O.'s, at rate of £200 and £150 respectively.
Ayr County Council.—Hæmatological Technician, £240.
Bath, Royal United Hosp.—Hon. Anæsthetist. Also Hon. Surg. Reg.
Bermondsey Borough.—Asst. M.O. for Maternity and Child Welfare, £600.
Birmingham Infirmary.—Asst. Res. M.O., £350.
Birmingham Maternity Hosp.—H.S., at rate of £75.
Birmingham United Hosp.—Asst. to Radiological Dept., £400–£450. Also Res. Anæsthetist, £70.
Bolingbroke Hosp., Wandsworth Common, S.W.—Cas. O., at rate of £120.
Bournemouth, County Borough.—Asst. M.O.H., &c., £500.
Bradford, City Sanatorium, Grassington.—Asst. M.O., £175.
British Postgraduate Medical School, Ducane-road, W.—Three H.S.'s to Surgical Unit, each at rate of £105.
Buckinghamshire C.C.—Two Asst. County M.O.H.s., each £600.
Chelsea Hosp. for Women, Arthur-street, S.W.—Registrar and Radium Officer, £75.
Chertsey, Botleys Park Colony.—First Asst. M.O., £400.
Colchester, Severalls Mental Hosp.—Med. Supt., £1100.
Dreadnought Seamen's Hosp., Greenwich, S.E.—Jun. Pathologist, £400.
Durham County Council.—Deputy County M.O.H., £960. Also Asst. Welfare M.O. £600.
Ealing Borough.—Asst. M.O.H., £600. Also Asst. M.O., £450.
East Ham Memorial Hosp., Shrewsbury-road, E.—Hon. Radiologist.
Folkestone, Royal Victoria Hosp.—Two H.S.'s, each £120.
Glasgow Royal Cancer Hosp. and Radium Institute.—Radium Officer, £650.
Greenwich Metropolitan Borough.—Jun. Asst. Maternity and Child Welfare M.O., £500.
Guy's Hosp. Dental School, S.E.—Dental Research Fellow, £400.
Halifax Royal Infirmary.—Third H.S. as Cas. O. in charge of Fracture Clinic at rate of £150.
Hampstead General Hosp., Haverstock Hill.—H.S., at rate of £100. Also Ophth. Surg. to Out-patients.
Hastings, Royal East Sussex Hosp.—Sen. H.S., at rate of £200.
Hove Borough.—Asst. M.O.H. £500.
Hosp. for Diseases of the Skin, Blackfriars.—Additional Member for Hon. Staff.
Hosp. for Sick Children, Great Ormond-street, W.C.—Clin. Pathologist, £750. Also Morbid Anatomist, &c., £600.
Hosp. for Tropical Diseases, 25, Gordon-street, W.C.—Res. Med. Supt., £250.
Hosp. for Women, Soho-square, W.—Hon. Clin. Assts. to Surgeons in charge of Out-patients.
Hounslow Hosp., Staines-road.—H.P. and Cas. O., at rate of £100.
Hull Royal Infirmary.—Second Cas. O., at rate of £150.
Ilford, King George Hosp.—Asst. Cas. O. and H.S. to Spec. Depts., at rate of £100.
Ilford, West Ham Hosp. for Nervous and Mental Disorders.—Jun. Asst. M.O., £350.
Isleworth and Heston Borough.—Asst. M.O.H. and School M.O., £500.
King's College Hosp., Denmark Hill, S.E.—Asst. Physician.
L.C.C.—Part-time Obstetrician and Gynæcologist, £800. Asst. M.O., Class I, £350. Also Three Asst. District M.O.'s, £350, £212 10*s.* and £75.
Leeds, St. James's Hosp.—Res. M.O., £350.
Leicestershire County Council.—Asst. County M.O.H. and District M.O.H., £800.
Lincoln County Hosp.—Sen. H.S., at rate of £250.
London Chest Hosp., Victoria Park, E.—Registrar, Ear, Nose, and Throat Dept., £50. Also Surg. Registrar.
London Homœopathic Hosp., Gt. Ormond-street, W.C.—Registrar, £150.
London University.—University Chair of Medicine, £2000.
Macclesfield, Cheshire County Mental Hosp., Parkside.—Asst. M.O., £350.
Maidenhead Hosp., Berkshire.—Hon. Gynæcologist and Hon. Dermatologist.
Manchester, Booth Hall Hosp. for Children.—Res. Asst. M.O., at rate of £200.
Manchester, St. Mary's Hosps.—Res. Anæsthetist, £100. Also H.S.'s, each at rate of £50.
Manchester Royal Children's Hosp.—Res. H.S., at rate of £100.
Mansfield, Harlow Wood Orthopædic Hosp.—Two H.S.'s, each at rate of £200.
Middlesbrough Education Committee.—Asst. School M.O., £500.
Middlesex Hosp. and Medical School, W.—Otological Reg., £300.
National Hosp., Queen-square, W.C.—Research Fellowship, £500.
Nelson Hosp., Merton, S.W.—Res. H.S., at rate of £150.
Norwich, Norfolk and Norwich Hosp.—H.S. to Orthopædic Dept., £120.
Plymouth, Prince of Wales's Hosp.—Hon. Asst. Surgeon.
Pontefract General Infirmary.—Jun. Res. M.O., at rate of £150.
Princess Beatrice Hosp., Earl's Court, S.W.—Hon. Asst. Surgeon to Ophth. Dept. Also Res. Surg. O., at rate of £200.
Queen's Hosp. for Children, Hackney-road, E.—H.P. and Cas. O., each at rate of £100.
Royal Cancer Hosp., Fulham-road, S.W.—Asst. Surgeon.
Royal Free Hosp., Gray's Inn-road, W.C.—Anæsthetic Reg., £150.
Royal Masonic Hosp., Ravenscourt Park, W.—Res. M.O., £300.
Royal Naval Medical Service.—M.O.'s.
St. John Clinic and Institute of Physical Medicine, Ranelagh-road, S.W.—Hon. Asst. Gynæcologist.
St. John's Hosp., Lewisham, S.E.—Res. H.S., at rate of £100.
St. Paul's Hosp. for Urological and Skin Diseases, Endell-street, W.C.—H.S., at rate of £100.
St. Peter's Hosp. for Stone, &c., Henrietta-street, W.C.—Clin. Assts. to Hon. Staff.
Salford, Hope Hospital.—Asst. Res. M.O., at rate of £200.
Salford Royal Hosp.—Two H.S.'s, each at rate of £125.
Sheffield Royal Infirmary.—Ophth. H.S., £120.
South London Hosp. for Women, Clapham Common, S.W.—Clin. Asst. for Gynæcological Out-patients.
Southampton, Royal South Hants and Southampton Hosp.—H.P. Also Cas. O., at rate of £150.
Southend-on-Sea General Hosp.—H.S., at rate of £100.
South Shields C.B.—Jun. Asst. School M.O., £500.
Truro, Royal Cornwall Infirmary.—Sen. H.S., £150.
Violet Melchett Infant Welfare Centre, Flood-walk, Chelsea, S.W.—M.O. in charge of Weekly Antenatal Clinic, &c.
West London Hosp., Hammersmith, W.—H.P. and Three H.S.'s, each at rate of £100.
Wickford, Runwell Hosp.—Post-Graduate Research Student.
Willesden General Hosp., Harlesden-road, N.W.—Res. Officer, at rate of £100. Also Hon. Out-patient Dept. Clin. Assts.
Wimbledon Borough.—Deputy M.O.H. and Deputy School M.O., £650.
Windsor, King Edward VII Hosp.—Two H.S.'s, each £120.
Wolverhampton, Royal Hosp.—Registrar to Fracture and Orthopædic Dept., £400.
Woolwich and District War Memorial Hosp., Shooters-hill, S.E.—Cas. O., at rate of £100.
Worthing Hosp.—Surgeon.
York County Hosp.—H.S., at rate of £150.

NOTES, COMMENTS, AND ABSTRACTS

OPIUM AND THE LEAGUE OF NATIONS

FROM information supplied by the secretariat of the League of Nations to the advisory committee on dangerous drugs at their last session it appears that 60 sovereign States are parties to the Hague Convention of 1912, 54 are parties to the Geneva Convention of 1925, and 64 to the Limitation Convention of 1931. The 1936 convention for the suppression of illicit traffic still lacks ratification by 10 State Members of the League in order to bring it into force. Belgium, China, Greece, and India have deposited their ratifications, and some 30 other countries have signed the convention but have not ratified it. Various administrative or technical reasons are assigned for the delay, but the United States of America and the Union of South Africa do not for their part propose to become parties to the convention. From the minutes of the twenty-third session of the advisory committee of the League it appears that M. Delgorge, the Dutch representative and chairman, was well satisfied with the work of the preparatory committee for a conference to examine the possibility of limiting and controlling the cultivation of the opium poppy and the production of raw opium." This success had been achieved despite efforts to hamper and frustrate the committee's work by false rumours and by spreading suspicion and dissension. The chairman claimed that the future convention by controlling the production of opium would make possible the final suppression of opium-smoking and limit the production of the drug to recognised world requirements. Welcome support was forthcoming from the representative of Turkey, one of the chief producing countries. He stated that poppy-growing formerly carried on in 62 provinces was now restricted to 17, and that the annual production of opium had been reduced from about 500–600 tons to 217. Raw opium produced for scientific and medical purposes now amounted to 80,000 kg. compared with 243,600 kg. in 1934. The representative of India took occasion to recall that opium-eating was allowed in India and that a large quantity of the drug was produced there for that purpose; and that "the Government of India did not consider that it was feasible to limit the use of opium to scientific and medical needs." The United States representative, however, indicated that his country "would take only a lukewarm interest, if any interest at all, in any conference which was not prepared to consider controlling the opium poppy cultivated for any purpose whatsoever."

THE MEDICAL REGISTER

ORDERS for the office edition of the Medical Register for 1939, published at the special price of 10*s.* a copy, post free, must be received, with a remittance, at the office of the General Medical Council (44, Hallam-street, Portland-place, W.1) not later than Dec. 31st. The office edition differs from the ordinary edition of the Register in that it does not contain reprints of the Medical and Dentists Acts and other preliminary matter, and is printed on cheaper paper and bound in boards. It is, however, equally serviceable to public authorities and others who wish to ascertain whether particular persons are registered medical practitioners or not. The Council also prepare monthly lists of names added to, and removed from, the Register, which can be obtained on application.

A 24-page brochure issued by H. R. NAPP LTD. of Clements Inn, W.C.2, surveys briefly the source, chemistry, methods of estimation, dosage, and uses of vitamins A, B, C, and D. The main points to look for in buying halibut oil, together with its history and characteristics, are allotted a short section at the end.

NEW PREPARATIONS

HIGH POTENCY OSTELIN TABLETS G.L. are intended for use where very large doses of vitamin D are thought appropriate (see leading article on *Vitamin Stoss* therapy in THE LANCET of March 12th, 1938, p. 617). Each tablet is said to contain 50,000 international units of vitamin D (Calciferol G.L.), and the makers (Glaxo Laboratories Ltd., Greenford, Middlesex) mention parathyroid tetany, psoriasis, chronic arthritis, and rickets as disorders that have been treated with the vitamin in such unusual amounts.

STERANDRYL is the name given by Roussel Laboratories Ltd. (36, Cavendish-square, London, W.1) to their preparation of crystallised testosterone propionate (testicular hormone). It is issued only in ampoules of 1 c.cm., but these contain solutions of three different strengths—namely, 5 mg., 10 mg., and 25 mg. per c.cm. Intramuscular injection is advised, and the hormone is being used in the treatment of sexual insufficiency and prostatic disorders in males and of mastodynia and menorrhagia in females, as well as in other conditions less obviously related to sexual function. According to the manufacturers, benefit is not likely to be apparent in males until some 80–150 mg. has been injected.

In a booklet entitled "Hormone Therapy, No. 4" ORGANON LABORATORIES (77, Newman-street, W.1) give a short descriptive account of their standardised biological products. Their androgens are Hombreol (natural hormone) and Neo-Hombreol (testosterone propionate), and their œstrogens Dimenformon (œstradiol benzoate) and various preparations of Menformon (œstrone). Particulars are also given of gonadotropic, corpus luteum, suprarenal cortex, and many other extracts, as well as of insulin and substances effective against pernicious anæmia.

The BRITISH DRUG HOUSES LTD. (Graham-street, N.1) have issued a revised and enlarged edition of their pamphlet "*p*H Values: What They Are and How to Determine Them." It contains enough of the theory of electrolytic dissociation, buffer action, and the properties of conductors to make the various methods of *p*H estimation intelligible. The use of the B.D.H. Universal Indicator and Comparator, the Lovibond Comparator, and the Capillator are described in detail. A copy may be had on request.

A book on "Motherhood" published by COW AND GATE LTD., of Guildford, has now reached its fifth edition. It contains information about feeding, general hygiene, clothing, minor ailments and the like, and has a useful chapter on the care of children abroad. The correct use of Cow and Gate products is described in detail. The price of the book, which has 270 pages, is 1*s.*

CUXSON, GERRARD AND CO., LTD., of Oldbury, Birmingham, send us a copy of their latest price list, which includes drugs and galenicals, plasters, surgical sundries and dressings, and hospital furniture and equipment. The firm carries out regular deliveries by motor vans in most towns within 120 miles of Birmingham.

OXYCEPHALY: CORRIGENDUM.—In the paper by Dr. Howkins and Dr. Jefferiss published in our last issue, Fig. IX a and Fig. IX b, appearing on a special plate, illustrate sections of an oxycephalic skull and a normal fœtal skull. We regret that these two Figures were transposed. As is made clear in the text, it is the normal skull (left) that has a regular laminated appearance and the oxycephalic skull (right) that shows irregular masses of fibrillary bone with intervening strands of richly vascular connective tissue.